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Cut HVAC Power Usage

Streamline Your Cooling & Airflow Setups & Save Money At The Same Time

by Carmi Levy
• • •

AS BELTS TIGHTEN and budgets shrink, CIOs and IT directors are scouring every last line item for inexpensive fixes and major savings. The data center's electricity bill has emerged as a major target of opportunity. You don't need to rip out and replace your equipment to drive efficiencies in power and cooling. Often, the savings are right under your nose.

"The impact of the economic downturn is really twofold," says Tim Hirschenhofer, director of sales for Degree Controls' AdaptivCool division (www.adaptivcool.com). "Customers want to save money, and certainly controlling airflow and HVAC costs are the easiest ways to gain efficiencies in the data center. This approach also extends the life of existing data centers by allowing more equipment to be put into the same size facility."

Here are a few suggestions to get you started on scaling back your HVAC power consumption.

Get An Energy Audit
An audit identifies where your HVAC infrastructure works and where it doesn't. Beyond helping find hot spots and potential trouble areas, it also lays the groundwork for data center managers to educate themselves about power management best practices. Most vendors these days provide basic audits at no cost.

Manage Your Airflow & Eliminate Obstructions
"The immediate knee-jerk reaction to a thermal problem is to add more cooling equipment," says Hirschenhofer. "But the reality is that most data centers today have more than enough cooling to handle the heat load that they've got."

Airflow distribution is critical to getting the cold air where it's needed and in the right amount, he says. By actively

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Are Flywheels For You?

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Data Centers Could Benefit From Kinetic Energy Devices

by William Van Winkle
• • •

INERTIA IS THE CENTRAL PRINCIPLE behind flywheel technology. It may also be the central reason why chemical battery-based UPSes have been the predominant backup approach for SME data centers over the last three decades. But market inertia and convention are no reason to overlook the potential benefits that flywheel UPS systems could offer your organization now.

Flywheels At A Glance
A flywheel is a mechanical device that stores rotational energy. In modern data centers, flywheels that are spun at a constant rate by a small motor can store enough energy to power large computer systems for short spans of time, just as chemical battery backups do. If the power to the flywheel's

motor cuts out, a flywheel-based, online UPS uses the flywheel's stored kinetic energy as the basis for generating electricity. The UPS itself is a generator. This generation sucks energy out of the system, but there's enough energy there to result in a few minutes of runtime in a properly sized system.

A traditional generator, like the ones waiting around to kick in and power your data center after a sustained loss of power, converts fuel into mechanical energy, which is then converted into electrical energy. A battery-based UPS takes electrical energy from the wall and stores it in chemicals, from which it can be extracted and used again as electricity. The flywheel-based UPS also takes electricity from the wall, stores it as kinetic energy, then converts that kinetic energy into mechanical energy and from that into electrical energy.

The Battery Fallacy
The trouble for flywheels has always been that battery-based UPSes generally deliver 10 to 15 minutes of runtime. According to Gary Rackow, vice president

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1. What is the size of your company (how many employees)?
- ☐ Less than 10
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- ☐ 100 to 199
- ☐ 200 to 499
- ☐ 500 to 999
- ☐ 1,000+

2. How often do you purchase computer hardware/software?
- ☐ Weekly
- ☐ Bi-weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Annually
- ☐ No Involvement

3. What is your annual computer hardware/ software purchasing budget?
- ☐ $0 to $9,999
- ☐ $10,000 to $24,999
- ☐ $25,000 to $49,999
- ☐ $50,000 to $99,999
- ☐ $100,000 to $249,999
- ☐ $250,000 to $499,999
- ☐ $500,000 to $999,000
- ☐ $1,000,000+

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Upcoming IT Events

Are you looking to learn more about data center or IT topics? Network with some of your peers? Consider joining a group of data center professionals. If you have an event you'd like to list, please send an email to feedback@processor.com.

- MARCH -

AITP Akron
March 31, 6 p.m.
Lindsay's Amber Restaurant
1500 Canton Road
Akron, Ohio
www.akron-aitp.org

- APRIL -

AFCOM Omaha
April 1
Mutual Of Omaha
3300 Dodge St.
Omaha, Neb.
www.afcomomaha.org

· · · · ·

AFCOM Central Ohio
April 8, 11:30 a.m.
Liebert
1050 Dearborn Drive
Columbus, Ohio
www.afcomcentralohio.org

· · · · ·

AITP Central Idaho
April 8, 11:45 a.m.
Owyhee Plaza Hotel
1109 Main St.
Boise, Idaho
www.boisestate.edu/dpma
/dpmaci/centida.html

· · · · ·

AITP Washington D.C.
April 9, 6:30 p.m.
Alfio's Restaurant
4515 Willard Ave.
Chevy Chase, Md.
aitpwashdc.ning.com

· · · · ·

ISSA Northeast Ohio
April 9, 8 a.m.
Corporate College East
4400 Richmond Road
Warrensville Heights, Ohio
neoissa.org

· · · · ·

AITP Northeastern Wisconsin Chapter
April 15, 4:15 p.m.
Holiday Inn Select
150 N. Sicolet Road
Appleton, Wis.
new.aitp.org

· · · · ·

ISSA Oklahoma City
April 15
Spaghetti Warehouse
101 E. Sheridan Ave.
Oklahoma City, Okla.
www.issa-okc.org

· · · · ·

AITP Omaha
April 16, 5:30 p.m.
Seraph Corp.
Omaha, Neb.
www.aitpomaha.org

· · · · ·

AITP Tarheel
April 16, 6 p.m.
Foothill Brewery
638 W. 4th St.
Winston-Salem, N.C.
www.aitp.org

News

New Dow Candidates Include Tech Companies

Google, Cisco, and Apple are among the names being considered for possible inclusion in the Dow Jones Industrial Average, according to Reuters. The Dow, which serves as an indicator of the stock market by tracking the stock prices of 30 of the largest, most widely held companies, has lost 25% of its value so far this year, prompting calls for changes in the companies it tracks, Reuters reports. Citigroup and General Motors are two of the companies that will likely be removed from the Dow, as their stock prices have dropped below $2.

IBM Could Buy Sun Microsystems

IBM is reportedly in talks with Sun Microsystems regarding a potential acquisition, according to *The Wall Street Journal.* The deal could be worth at least $6.5 billion, according to the report, which represents a 100% premium over Sun's stock price when reports of the acquisition were made public. According to the Journal, the two companies share many similarities: Both make computer systems for the non-Windows market, support Linux and Java open-source software, and aren't as dependent on Intel microprocessors as other manufacturers. Sun has reportedly been looking for a potential acquirer, such as IBM, HP, Dell, or Cisco, for several months.

Study Shows Increase In Computer Science Students

Student enrollment in computer science programs is up 6.2% compared to last year when looking at both premajors and majors, according to the latest data from the Computing Research Association. When looking at only students who have declared a computer science major, the number is up 8.1% from a year ago. Computer science bachelor degree production is expected to be down 10% this year, compared to a decline of about 20% last year. The number of new computer science Ph.D. students is also on the rise, up 10% compared to last year's figures. The Computing Research Association study notes that diversity in the undergraduate programs remains poor, with only 11.8% of computer science degrees awarded going to women and 64.1% going to recipients who reported their ethnicity as white.

Microsoft Offers Discounted Software Leasing

Thanks to new price cuts offered by Microsoft, large enterprises and other organizations will be able to lease the company's software at a discount of up to 26%. According to MicrosoftIncentives.com, enterprises will be able to sign up to subscribe to Microsoft Office 2007, Windows Vista, or two bundles of CALs (client access licenses) for server software at a significant price reduction—more than a quarter off the list price. The Web site says enterprises can take advantage of discounted prices when they sign up for SQL Server, SharePoint, and other Microsoft software. The move is seen as a bid by the software giant to retain its customers in the midst of a recession.

PCI Security Standards Council Releases PCI DSS Checklist

In an effort to help companies still not in compliance with the 12 security controls included in the PCI DSS (Payment Card Industry Data Security Standard), the PCI Security Standards Council has released "The Prioritized Approach To Pursue PCI DSS Compliance," a document that outlines six milestones companies can use as a road map to gaining compliance. The PCI DSS, which aims to secure credit and debit card data, has left many companies overwhelmed and uncertain as to where to start to reach compliance. As further assistance, the council released a spreadsheet-based utility that will help companies plot their progress in achieving the milestones and help auditors view the compliance statuses of companies.

Recession Spurs Linux Adoption

The economic downturn is propelling a "surge in the acquisition of Linux" among manufacturers, financial services, government agencies, and retail industries, according to an IDC survey conducted last month. Among the 330 IT execs surveyed, 53% plan to accelerate Linux adoption on the server this year directly due to the economy. Additionally, 73% are "either actively evaluating or have already decided to increase their adoption of Linux" on the server in 2009, while 68% plan adoption on the desktop. The survey reports that the Americas have felt the economy's influence the most, with 62% already making budget cuts or investigating where cuts are possible, 66% evaluating or increasing Linux adoption on the desktop, and 67% doing the same on the server. The retail industry showed the most potential for accelerating Linux adoption, with 63% planning to increase Linux desktop adoption and 69% Linux server adoption. About 50% of respondents reported that migrating to virtualization software is speeding up Linux adoption, and 88% plan to evaluate, deploy, or increase virtualization software use within Linux OSes in the next two years.

Dell Lays Off Hundreds More

Dell further cut its forces this month, with layoffs in its Texas, Tennessee, and North Carolina factories estimated in the hundreds. The computer maker declined to officially confirm how many employees were affected. The news follows Dell's December announcement of plans for global reorganization and the January layoff of 1,900 employees in Limerick, Ireland. The reductions are part of Dell's effort to save $4 billion in annual costs by February 2011. The enterprise says it

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WATCH THE STOCKS

This information provides a quick glimpse of current and historical stock prices and trends for 14 major companies in the technology market.

Company	Symbol	Year Ago	March 5 $	March 19 $	% change from previous issue
AMD	AMD	$6.15	$2.16	$2.96	▲ 37.04%
Computer Associates	CA	$22.08	$15.40	$16.60	▲ 7.79%
Cisco Systems	CSCO	$24.47	$14.55	$16.23	▲ 11.55%
Dell	DELL	$19.51	$8.39	$10.04	▲ 19.67%
Google	GOOG	$432	$305.64	$329.94	▲ 7.95%
HP	HPQ	$46.59	$27.08	$29.10	▲ 7.46%
IBM	IBM	$116.94	$87.48	$92.66	▲ 5.92%
Intel	INTC	$21.09	$12.31	$15.15	▲ 23.07%
McAfee	MFE	$33.28	$28.99	$31.52	▲ 8.73%
Microsoft	MSFT	$28.62	$15.27	$17.14	▲ 12.25%
Oracle	ORCL	$19.56	$14.53	$17.37	▲ 19.55%
Red Hat Software	RHT	$16.82	$13.69	$15.65	▲ 14.32%
Sun Microsystems	JAVA	$15.67	$4.19	$8.63	▲ 105.97%
Symantec	SYMC	$16.49	$13.12	$14.18	▲ 8.08%

NOTE: This information is meant for reference only and should not be used as a basis for buy/sell decisions.

News

saved $1.4 billion in the last fiscal year, helped by an 11% workforce cut, or the loss of about 9,300 jobs. Dell expects to see savings from restructuring its supply chain and manufacturing network in the near future, although further layoffs are expected.

EMC Looking For Acquisitions

Network-storage and data-recovery company EMC announced that it is looking for potential acquisitions that will help strengthen its existing business. Joe Tucci, chairman, CEO, and president of EMC, says the company is most interested in acquisitions that are very similar to EMC, rather than venturing into new markets. Specifically, Tucci says acquisition targets include companies specializing in virtual infrastructure or information infrastructure. Other factors EMC is interested in are good people, obtaining new technology, and accessing the new company's customers. Potential acquisitions are made possible by EMC's $9 billion in cash and thus its ability to buy companies without drawing on outside financing.

California Senator Wants To Update Data Breach Law

California Sen. Joe Simitian is looking to expand a data breach notification law that was introduced six years ago with a new bill called SB 20. The bill would require companies to report data breaches not only to customers, but also to the state's attorney general. Simitian's hope is that by reporting data breaches to a central authority, California residents and officials would get "a better understanding of the nature and scope of the problem." According to Fred Cate, a law professor at Indiana University, only one in 10 data breaches are made public, and overall, there is very little data about data breaches.

Microsoft Receives Bundling Reprieve

Microsoft has until April 21 to respond to allegations that it unfairly stifles competition by bundling its Internet Explorer search engine with the company's Windows software, according to the European Commission, the European Union's antitrust agency. This is an extension from the original date of March 12, eight weeks after charges were first leveled against Microsoft. The charges stem from a complaint from Opera Software ASA in 2007. Since then, Mozilla and Google have joined in the case as "interested third parties." If it loses, Microsoft would have to offer other browsers with Windows.

Digital Signage To Grow In 2009

A report from ABI Research estimates that the U.S. digital signage market will grow by about 33% this year. According to ABI Analyst Zippy Aima, "Traditional advertising media are losing their appeal for many consumers. Consequently, digital signage has emerged as a way to deliver highly customized and targeted messaging in a variety of locations." ABI Research's report indicates that government, law enforcement, education, and hospitality venues were some of the most likely new places to adopt digital signage. Technological improvements in digital signage, such as display appearance quality and affordable data storage, also contribute to its rise in popularity.

Survey: Budget Cuts Major Threat To IT Reliability

Budget cutbacks may cause a serious disruption to data centers, according to membership surveys from AFCOM (Association For Computer Operations Management), an association of data center managers. Respondents indicate that one out of every four data centers should expect to experience a disruption with their equipment in the next five years. In particular, respondents noted that cuts to security would cause problems with services; for example, 6.1% are cutting physical security, 4.5% are scaling back data security, and 12% said that generally budget cuts would cause disruptions. Of the 133 respondents, half said that cutbacks were planned in the near future.

Intel, AMD Tangle Over Global Foundries Spinoff

Intel claims that AMD violated a confidential part of a 2001 cross-patent licensing agreement between the two companies when it announced plans to spin off its manufacturing assets into Global Foundries, a joint venture with the Abu Dhabi government. Intel threatened to revoke AMD's x86 licenses and rights, saying the latter wrongly tried to transfer Intel's intellectual property to a third party, but AMD has countered that the legal threat means that Intel itself has violated the agreement.

Survey: Surfers Aware Of Behavioral Tracking

About two-thirds of Internet users 18 and older are aware that advertisers employ behavioral tracking, says a TRUSTe survey, but users also seem to be growing more tolerant of the practice. Only 51% of users surveyed object to third-party marketing surveillance, compared to 59% last year. Still, 48% of users delete browser cookies at least once a week in an effort toward better privacy, compared to 42% in 2008; however, 39% admit that they don't adequately protect their personal information on the Web, even though three out of four claim to know how.

Microsoft To Release Win7 Toolkit

Microsoft plans to release a toolkit next month that will help business users test their existing applications for compatibility with Windows 7. This is the first time Microsoft has released the toolkit before the general release of its new OS—Vista's toolkit was released at the same time—and by doing so, it will give its customers more time to test for compatibility. Those who have already tested software with Vista will have a smooth transition, as applications that run on Vista will be compatible with Windows 7. The company will release another version of the toolkit with the commercial release of Windows 7, which is slated for late this year or early next year.

Industry Group Changes Focus

The Business Forum for Consumer Privacy, formerly known as the Consumer Privacy Legislative forum, has pulled back from rallying for comprehensive U.S. privacy legislation, instead shifting its focus to developing the framework that would make new governance possible. The Microsoft-led group was designed to bring together a mixture of consumer companies, tech companies, and advocacy groups to push for privacy legislation. Rather than focusing its attention on privacy legislation, the group now touts itself as "an organization focused on fostering innovation in consumer privacy governance" in its new mission statement.

Layoffs For Nokia

Nokia is joining the ranks of other handset manufacturers affected by the global economic downturn with its announcement that it plans to lay off 1,700 employees worldwide, or about 1% of its global workforce. Nokia's fourth-quarter net income dropped to $745 million from $2.4 billion in the same period a year ago. The cuts will mostly affect the Devices and Markets units, the Corporate Development Office, and global support operations. Nokia announced earlier this year that it was aiming to slash $910 million from its budget, even encouraging its employees to resign and accept a severance package.

HP Revamps Pricing & Services

Computer maker HP is now offering unbundled services, as well as tiered pricing in a new approach offered via EDS. Customers will be able to personalize their orders for high- and low-priority applications. Although EDS and HP have traditionally negotiated with major enterprises for outsourcing, smaller clients can now take advantage of scaled-down management offerings for as little as 85 servers and 1,000 service-desk seats. New managed services include server and storage operations, flexible computing, and managed messaging for security and compliance. HP will also provide multiple reliability levels, reducing overall building costs by 25%.

FTC Questions Cloud Computing, Google Services

The Federal Trade Commission met this month to discuss jurisdiction over potentially deceptive practices for cloud computing services. On the same day the FTC convened, EPIC (Electronic Privacy Information Center) filed a complaint with the commission, requesting a security investigation of multiple Google cloud computing applications, such as Google Desktop, Google Docs, and Google Calendar. Although Google claims that its storage is secure, EPIC disclosed numerous privacy-related incidents in its complaint. EPIC has also asked the FTC to bar Google's cloud computing services until security measures are in place and Google agrees to contribute $5 million to privacy research.

Hitachi Splits In Two

Tokyo-based Hitachi has divided its company into two separate entities and named a new president. Beginning July 1, the company will be split into two groups; the Automotive Systems Group will spin off and relocate to its own headquarters with a work force of about 7,600 employees, and the Consumer Business Group will have about 750 employees and will focus on manufacturing and selling flat-panel monitors for consumer and commercial LCD projectors. Takashi Kawamura will now serve as chairman, president, and CEO.

STORAGE MEDIA BROKERS
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Product Showcase

Low-Cost Solutions To Remote Site Management & Data Center Power

Baytech Devices Provide Green Solutions To Save Businesses Some Green

EVERY DATA CENTER has the same core issues to consider, including power, cooling, and the cost of operation. All are fundamental to successful data center operation. There are many ways to optimize power and cooling, and cost savings can come from a variety of areas. But in order to maximize performance and savings, data center managers need information about (or from) their devices.

Baytech's line of power and remote management products addresses these needs. Baytech's solutions are designed to scale easily, optimize data center equipment performance, save money, and cover a range of needs, from the DS-RPC Remote Site Management series that lets managers identify and address IT issues at remote locations to the ATS switch that provides power-circuit-level redundancy to maintain uptime to a series of outlet metering and control products. And because Baytech's products are designed to save operational costs in part by optimizing power, they're a green way to save money.

With remote management capabilities, safe power switching for single-corded devices, and varying levels of outlet and circuit breaker control and monitoring, Baytech offers lines of products that are smartly designed, inexpensive, and can save companies a great deal of money while optimizing data centers for maximum efficiency.

DS-RPC Remote Site Management Series

MANY COMPANIES have remote locations that need onsite data applications, such as banks and retail stores. When a problem arises at those sites, usually a repair person must be deployed to discover and subsequently fix the problem. One complication that sometimes arises is that the repair person discovers that fixing the problem will require additional equipment that they don't have with them. Thus, they have to leave, acquire the proper equipment, and come back a second time to replace the faulty equipment.

In addition to the cost of two site visits by a repair person, the organization will lose money because of the downtime created by the initial problem and the time it takes for someone to make two visits and fix whatever is amiss.

The BayTech DS-RPC remote site management series of products provides secure and reliable management for the network, servers, and console ports. The DS-RPC remote site management devices let you both identify a problem and fix many of them remotely, saving the cost of a repair visit and reducing downtime.

Of course, in some cases, the repair cannot be done remotely, as in the case of a failed device. However, because the DS-RPC devices can rule out a number of issues ahead of time, the repair person will know what's in store for him. For example, if the problem is identified as a device failure, he could arrive onsite with the necessary part in hand.

Features of the DS-RPC series include console port management, device port naming, individual port password assignment, direct TCP port access, and Telnet/SSH menu device selection. Users also have remote and HTTP power control and true RMS voltage and current information. Security features include SSH v2, RADIUS authentication, and SNMP and user account lists per port to allow system administrators to remotely manage the DS series with greater confidence and control.

Automatic Transfer Switch (ATS)

MAINTAINING UPTIME is crucial to every data center and remote branch. Having redundancy on the power circuit level is a critical part of it. Baytech's ATS device is designed to provide a simple yet reliable solution for automatically sensing power loss and seamlessly switching to a backup circuit. The ATS device is designed specifically for single-corded devices, which are likely found in even the most up-to-date data center.

AC signals should technically be the same voltage, but they're often out of phase because the actual voltage differs depending upon where on the panel the feeds are pulling their power. Depending on the degree of difference, there is a great deal of energy potential between the two sides, which could seriously damage equipment.

Some switches will detect the lost power and immediately switch to the other side; however, a lot of energy remains in the power supply, which could still produce a damaging spark.

The ATS line of transfer switches solves this problem by actually breaking the connection to let the energy dissipate. The sine waves are reduced to zero, effectively killing any power potential, and only then will the ATS device switch over. No matter how out of phase the sources may be, the ATS device can safely make the switch.

The switching time, even with the break, is between 8 and 15ms—about the length of one 60Hz AC cycle—so performance is not affected.

The ATS devices also provide monitoring, so data center managers can glean information about amperage load, true RMS power (watts), volt-amps, voltage, and internal temperature. When combined with a DS series device's console server, alerts on power and transfers can be sent via secure SNMP v3.

Other standard features of the ATS devices include programmable dropout voltage, programmable switchback voltage, SNMP and HTTP (with a DS series device), and PCB-based reliability.

Product Showcase

MRP (Modular Rack Power) Metered Power Strip

MUCH MORE THAN a simple strip of outlets for data center hardware, Baytech's line of metered outlets is designed to give data center managers critical information about the efficiency of the devices attached to the power strip.

Many products give you information only on the circuit breakers on the panel. Baytech's metered power strips also provide metrics on the circuit breaker on the power strip itself. The metered outlet modules offer reports on amps, voltage, voltage-amps, watts, power factor, and efficiency per receptacle. As a result, the information from the metered strips will help data center managers avoid tripping breakers and damaging entire racks of equipment.

All of this data helps data center managers discover other issues. For example, the module may report that a given device is pulling 12kW, while the cooling solution for that area is configured for only 8kW. Thus, you can discover a hot spot in the data center.

Another problem that the metered outlets help solve is predicting when a given device is about to fail. Before hardware fails, it usually becomes less efficient. The metered outlets will provide data showing a reduction in a device's efficiency long before it fails, giving data center managers weeks or months of notice before a device fails.

Having the metrics on not only the circuit breaker on the panel, but also the circuit breaker on the power strip enables you to make intelligent decisions when deciding to purchase servers. When considering a purchase, users need to examine issues of performance, function, and capability, but they also need data on how efficient a particular server is. In other words, they want to know how much power a device uses in comparison to how much processing power it has.

Other features of the metered outlet modules include support for 20, 30, 50, or 60 amps; on, off, and reboot options; HTTP, SSH, and SSL access; RADIUS and TACACS authentication; and tool-less mounting. Reports include information on power factor per outlet, kW hour per outlet, current, voltage, volt-amps, and watts. All metered outlets feature a modular design for optimum scalability, as well as PCB power distribution and fail functional design.

All of Baytech's MRP devices are designed to securely hold devices in the receptacles and for extraordinary durability. With high retention and locking receptacles, MRP devices are designed to hold any and every connected device, even if the weight of the cable is pulling on them. In addition, Baytech uses PCB-mounted receptacles, so there are no cold-soldered connections in the MRP devices.

MRP Metered & Controlled Outlets

BAYTECH OFFERS a line of metered outlet products that gives you the features of metered outlets with the powerful addition of outlet control. Having actual control over the outlets is a powerful way to integrate remote management into data center monitoring. For example, if a piece of equipment is locked up, it may simply need to be rebooted. Because you have control, you can reboot the device remotely.

Another issue commonly faced is the problem of not having enough power available for every receptacle in a strip. With outlet control, data center managers can turn off those unused outlets. This ability translates into potentially large savings in energy costs. A device that is connected to a power source, even if it's turned off, is still drawing quite a bit of power, which means simply turning off a server doesn't result in as much power savings as if the outlet were also off. Baytech's metered outlet module with outlet control lets users turn off both the device and the outlet, resulting in significant energy savings.

All Circuit Breakers Monitored

Most metered power solutions only monitor input power. BayTech monitors all circuit breakers and reports via SNMP when thresholds are met.

Outlet Metering With Efficiency

Monitor individual outlets and receive current, watts, and volt-amps. Continuously monitoring equipment for efficiency with power factor.
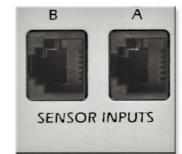
Locking C13 Receptacle Optional

Reliable integrated locking clips assure power cord retention. Unique to the industry and does away with nuisance wire clips.

Reliable PCB Power Distribution

ISD (Insulation Displacement) connectors are faulty and unreliable! All BayTech power solutions use reliable PCB power distribution.

Integrated Sensor Inputs

Eliminate the need for extra environmental monitoring devices. All BayTech power solutions offer two ports for external temperature and humidity probes.

Controller Module

Receptacle Module

MRP Metered Power Strip With Outlet Control & Circuit Metering

IN ADDITION TO providing products that offer metering at the circuit-breaker level and control at the outlet level, Baytech also has a line of devices that meters at the outlet level. With these devices, users can glean a power factor for each device plugged into a cabinet in addition to the cabinet itself.

These devices give you a tool to drill down to find the most inefficient server, which you can use to determine what hardware needs to be replaced to maximize data center efficiency.

MRP Metered Power Strip & Circuit Metering Without Outlet Control

NOT EVERY DATA CENTER needs outlet control, but you might still want the valuable information provided by the metering of outlets and circuit breakers. For those customers, Baytech offers devices without outlet monitoring.

Like the metered strips with both circuit metering and outlet control, these devices are available in both high- and low-density models and support 120/208/AC single-phase and 208/400VAC three-phase and include the standard features of the other MRP device types. Unique features include monitoring of all circuit breakers; a kW hour meter; meters for current, voltage, and watts; and an optional integrated interlocking C13 receptacle.

Cut HVAC Power Usage

managing airflow—possibly through airflow management units under a raised floor or in a dropped ceiling—you eliminate hot spots.

"You're not adding more cooling. Rather, you're using what you've got more effectively," Hirschenhofer says. "This allows you to run your cooling equipment much more efficiently so you don't have to cool to the warmest spot in the room anymore."

Additionally, anything that blocks the free flow of air above or below a raised floor raises the potential for hot spots.

"Servers should ideally be pulling cold air from the front and exhausting warm air out the back," says Rob Kubik, power and cooling specialist at CDW. "A badly placed power strip, UPS, or cable can get in the way. Sometimes, even a simple adjustment can allow the air to go in and out as quickly as possible."

Maintain Your Equipment & Its Placement

Equipment placement within a rack is crucial to effective cooling, airflow, and energy conservation. In a partially empty rack, move the installed devices as close to the floor as possible to take advantage of the cooler air below. Bottom-to-top placement also gives you more redundancy in the event of an outage.

"Being at the top of the rack is not the place to be if there's a cooling failure," says Steve Spencer, president and CTO of Digital Fortress (www.digitalfortress.ca). "You'll be the first one to fry."

Spencer adds that drive arrays should be moved toward the floor, as they're heavier and tend to run hotter. Adjusting vertical placement reduces hot spots and improves cooling efficiency.

UPSes can also be major sources of wasted energy. Kubik says a UPS with a low power load is significantly less efficient than one running closer to its load capacity. He recommends consolidating them to raise efficiency. As an added bonus, consolidation simplifies management.

Accelerate Virtualization

Today's multicore processor-based servers run more processes and applications more efficiently, delivering greater capacity without commensurate increases in heat loads or energy consumption.

"Virtualization makes more processor cycles available for less heat load," says Spencer. "It also scales extremely well, allowing you to, for example, go from 1,000 to 2,000 concurrent users on the same box with little change to the heat load, which positively impacts your power usage."

Make The Utility Bill Visible

It may be difficult to appreciate excessive energy consumption as long as someone else is paying the bill.

"A lot of folks are being shown that electric bill now, and they're being held accountable," says Kubik. "So whether there's a problem or not, they'll have to run through the paces to see what they can do to reduce power consumption."

This level of visibility makes it easier to track energy performance in the data center. "Many shops don't measure their consumption as diligently as they could be," says Kubik. "So it's been a free-for-all—they add a UPS here, a cooling unit there, all to address tactical cooling needs. But they don't really know what they're consuming."

Change Your Thinking

Saving energy in the data center is as much based on attitude adjustment as it is on changes to physical infrastructure. Changes to long-held assumptions about environmental management can go a long way toward driving efficiencies.

> "The room doesn't have to feel like a meat locker to adequately cool the equipment."
>
> *-Degree Controls' Tim Hirschenhofer*

Top Tip: Fix Your Floor

According to Tim Hirschenhofer, director of sales for Degree Controls' AdaptivCool division (www.adaptivcool.com), leaky raised floors allow cold and warm air to mix, which forces CRACs to work harder and suck up more power. Seal off open cable cutouts and use blanking panels to actively manage airflow down low. Train data center employees to manage floor tiles appropriately and avoid leaving unnecessary openings following equipment moves, additions, and changes.

"The room doesn't have to feel like a meat locker to adequately cool the equipment," says Hirschenhofer. "It's okay for server intake temperatures to go as high as 77 degrees and still be in the safe zone. That's a little bit hard for some data managers to accept. They'd much rather walk into the room and be cold immediately."

Additionally, Kubik says there's often a disconnect between IT and facilities. "Even though their offices may be across the hall from each other, they're not necessarily talking," he says. "We encourage everybody to get onto the same page."

As an example, airflow management initiatives that move hot air into a drop ceiling may cause ripple effects beyond the data center. If the building uses the plenum space for other systems, hot air from the data center may cause problems there. Stronger partnerships can ensure win-win solutions for both IT and the facilities teams. ▣

Are Flywheels For You?

of sales for the Americas at Active Power (www.activepower.com), this battery runtime is his company's chief competition. Rackow notes that years ago, it was common for mainframes to run single applications. He used to watch IBM practice drills in which an application went through an orderly shutdown in less than 10 minutes, and so a 10-minute UPS was perfect. Today, though, with data centers running multiple applications across multiple systems, such numbers are impractical. The race is not to shut down the applications; it's to power up the generators. If the generator doesn't start, Rackow asserts, people who think one can be repaired in less than 10 or 15 minutes are deluding themselves.

"Properly designed engine systems are typically running and under load in eight seconds," he says. "The national electric code for all health care facilities requires that their standby engines must be started in under 10 seconds. Everybody's had an engine that can do that for years. If they're properly maintained, it's not an issue. You don't need 15 minutes. You really don't even need 15 seconds. But for some people, it's a giant leap of faith to go there."

"Most modern generators will ignite in five minutes or less," adds Forrester analyst James Staten, who says that most implementations of new flywheels give you more than five minutes. "There's much more of a connection between the two at this point," he continues. "You see those kind of generators a lot in tier 4 data centers, which have mission criticality and never go down."

Viewed from a thermal angle, the battery proposition is even more erroneous. As Pentadyne (www.pentadyne.com) literature illustrates, today's servers and rack densities have rigid environmental cooling demands. If the power fails, "you have less than 60 seconds to have the genset online and powering the cooling systems; otherwise thermal server crash is inevitable."
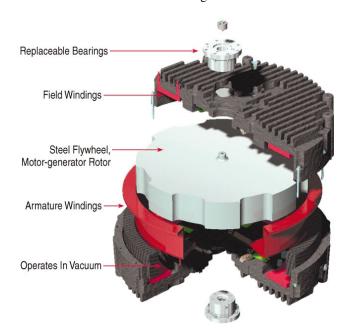
Flywheel Rationale

There are three reasons to consider a flywheel-based UPS solution: space, long-term cost, and environmental concerns. Space is the simplest. Active Power's Rackow draws the picture of a flywheel-based UPS occupying a 4-foot square closet while an equivalent battery-based UPS occupies the same depth but is 20 feet long. Magnified across the expanse of a data center and its many systems, that's a lot of dead real estate devoted to batteries that might otherwise be earning revenue.

Long-term costs and environmental concerns can be closely tied, as in the relationship between local resources and the cost of electricity, or polar opposites. As Forrester's Staten notes, "In a down economy, 'green' goes from being environmental to being about money. We're just not seeing people doing anything for purely environmental benefits. It's all about economic benefits."

Flywheel-based systems carry higher initial price tags than their battery-based

counterparts, but Active Power's Rackow states that flywheel solutions can recoup their higher costs in 18 to 24 months. This ROI hinges on several less-discussed liabilities with battery technology. Battery lifetimes are generally rated with a 100% figure dependent on the battery never being used. Every instance of battery usage lessens its potential maximum utility, and load sags and cuts occur regularly to businesses. Some record hundreds of such drops per year. Moreover, batteries must be maintained at under 75 degrees Fahrenheit

Replaceable Bearings

Field Windings

Steel Flywheel, Motor-generator Rotor

Armature Windings

Operates In Vacuum

Flywheel UPSes are mechanical devices that store rotational energy.

for optimal performance, a much costlier proposition when battery-based UPSes are 6 to 8% less power efficient than flywheel-based UPSes, according to Active Power.

Pentadyne pegs UPS battery MTBF at around 10,000 hours. Its flywheel devices are rated at 875,000 hours. Containment requirements for battery systems exist because batteries can swell and split, releasing toxic chemicals and gases. Battery states in general are difficult to gauge and time-intensive to maintain, and many data centers don't maintain batteries as well as they should. Poor battery maintenance can lead to literally explosive results. In comparison, flywheel technology entails nearly no maintenance time or expense.

Going green can pay dividends in other ways. Active Power's Rackow notes one user who installed about 2 megawatts of flywheel UPS product. The customer then went to the local power company, explained that they opted for the more power-efficient flywheel solution over conventional battery, and the utility cut the company a rebate check for $125,000. Rackow says that many power companies offer such programs, as it defers the expenses they would incur in building out more infrastructure, but few data center managers know of or claim these rebates.

"There's a lot of concern now about energy efficiency and the greenness of your company," says Forrester's Staten. "Having lead acid or even lithium ion batteries exposes you to hazardous waste disposal expenses. If you're in Europe, where carbon credits are a concern and hazardous waste can be a rather expensive thing to deal with, this is far more appealing. But now that there's a lot of U.S. companies that care about energy efficiency, even without the carbon credits, this is a more appealing technology than it's been in the past."

Staten points out that "a flywheel solution is also magnitudes better toward getting LEED certification than battery backup." The LEED (Leadership in Energy and Environmental Design) Green Building Rating System (www.usgbc.org/leed) outlines a lengthy set of standards for eco-friendly construction. LEED-compliant buildings may be more expensive to build, but many states offer significant tax incentives for adherence; plus, there are less tangible public perception benefits tied to being LEED-certified.

True enough, larger data centers will recoup the added expense of buying a flywheel-based UPS solution more quickly than an SME. But the more a data center planner cares about environmental concerns and is willing to take a longer-term view on ROI, the more flywheel technology will become a persuasive proposition, especially for new data center builds. ▣

> Flywheel-based systems carry higher initial price tags than their battery-based counterparts, but Active Power's Gary Rackow says flywheel solutions can recoup their higher costs in 18 to 24 months.

Save Data Center Power By Updating Equipment

Power Costs Can Be Lessened For Tomorrow By Employing Fresh Buying Strategies Today

by Elizabeth Millard

• • •

OLDER EQUIPMENT CAN BE A DRAIN on power sources because it can lack the efficiency of newer machines. Not only do older systems take more electricity, but they might also need more cooling, which creates another source of power loss. It makes sense, then, that updating equipment can mean saving power in the long run.

Update Every Type Of Equipment

Although servers tend to be a strong focus for buying, power bills can often be driven up by inadequate cooling measures. For example, Franklin & Marshall College in Lancaster, Pa., had in place two air conditioners that were both 25 years old. The amount of cooling they pushed out turned the data center so cold that it was like walking into a refrigerator, notes Josh Baron, the college's system administrator.

The college replaced the units with a single air conditioner that also had humidity controls, and there was an instant boost in efficiency. Also, because the unit could channel the air more intelligently, the general temperature of the room didn't have to be so icy. (For more information on saving power through cooling, see "Cut HVAC Power Usage" on page XX.)

Also ideal for updating are monitors and other controls. Data centers often rely on temperature monitors to keep power and cooling on track, but these smaller pieces of equipment can experience wear and tear just like servers or cooling systems. Talk to manufacturers about expected life span of these types of controls and make sure there's a plan in place to revamp them before that end date so that monitoring tactics stay fresh.

Even the individual parts of blade servers can be considered for upgrades. According to a recent whitepaper from Emerson Network Power, it can boost energy efficiency to upgrade specific components within a blade system, such as power supplies, memory modules, processors, and fans.

Spiff Up Your UPS Systems & Management Systems

With low-cost UPS options available in the marketplace, it can be tempting to save a few dollars on this equipment, but it's usually better to go for the best available power supplies, even if it bites into the budget, says Jack Pouchet, director of energy initiatives at Emerson Network Power (www.emerson.com).

Look for power supply systems that deliver about 90% efficiency, he advises, rather than paying less for the systems that promise about 75% efficiency. That small boost in efficiency will be important for long-range power savings.

Also important are management systems that can create more automation, Pouchet notes. He points out that data centers are often sized for peak conditions but that those conditions rarely exist, creating a power consumption level that remains high even when the server load is low.

"Some IT managers disable the built-in power management features that are part of server processors, but they may want to reconsider that strategy," he says. The managers often employ this tactic because they're concerned about response time, he adds, but those built-in controls are often intelligent enough at switching to keep any response-time issues to a minimum.

Think Green When Upgrading

The greening of the data center remains a hot topic; subsequently, there are plenty of manufacturers offering equipment that promises to run at a higher level of efficiency than in the past.

To create a greener tinge to a data center, talk to manufacturers about what kind of power savings could be realized by switching to their products, but also consider refurbished equipment for upgrade needs. Particularly at remote offices or with lower storage tiers, this type of equipment can be helpful with virtualization strategies (see the "Top Tip: Virtualize" sidebar for more information) and can fall in line with larger company goals toward greener operations.

Find Efficiency At The Cabinet Level

Because so many cabinets and racks now have cooling and power-monitoring capabilities, they can be as important in an upgrade plan as servers and other equipment.

> ## "Some IT managers disable the built-in power management features that are part of server processors, but they may want to reconsider that strategy."
>
> *- Emerson Network Power's Jack Pouchet*

It may be worth the investment to get customized cabinets that are suited to a specific space, says Steve Prather, senior vice president of sales engineering and operations for ViaWest (www.viawest.net), a colocation and managed services provider. He notes that some data centers are in older buildings that could have limitations in terms of air exhaust and heat return areas.

There may also be considerations in bringing fresh air into the system or working with existing power consumption issues. Not all the cabinetry has to be custom-built, but it could be advantageous to work with a data center designer or architect that specializes in data center projects. These experts can lend insight into what needs to be upgraded, particularly with the goal of power consumption savings.

Key Points

- Think of all aspects of the data center as ripe for power-related upgrades, including UPS systems, blade server components, temperature monitors, and air conditioners.
- Upgrade cabinets, as well as servers.
- Consider refurbished equipment for a green touch to the data center.
- Virtualize before upgrading to reduce the number of servers needed.

Top Tip: Virtualize

Many data centers have been finding that instead of replacing servers, it makes more sense to use virtualization applications to reduce the number of servers needed. The strategy cuts down on purchasing, and because there are fewer machines, there are also significant savings in power consumption.

For instance, at Franklin & Marshall College in Lancaster, Pa., there are two people on staff to handle about 100 servers, so the need for more efficiency is crucial, says Larry Owens, the college's system manager. The college has been using virtualization to reduce server numbers and began by targeting larger servers.

"It's a transitional thing, to get rid of those physical servers and not use as much equipment," Owens says. "The result is that we save on hardware [and] centralize storage, and there's no power waste."

New Google Project Is Delayed

Google has delayed plans for its Project 10-to-the-100th. The company was expected to launch ideas for the project this month but claims it underestimated the time it would take to sort through all the submissions. According to the project's Web site, Project 10-to-the-100th is designed to gather ideas for projects that can change the world for the better by helping people; the company plans to support each of the top five ideas with $10 million in funding. The public will vote to narrow the list to 20 possible ideas, from which a committee will select the top five.

Cybersquatting On The Rise

WIPO (World Intellectual Property Organization) reported a sharp rise in the number of cybersquatting cases—reports of individuals or organizations registering a well-known brand or company name as an Internet domain name in order to illegally profit—filed by trademark holders. The record 2,329 complaints mark an increase of 8% year-over-year. MarkMonitor, another copyright protection service, also reported 440,584 instances of cybersquatting in the fourth quarter of 2008, 18% more than in 2007. Increases in cybersquatting have made trademark holders leery of ICANN's (Internet Corporation for Assigned Names and Numbers') proposed plan to open custom top-level domains, allowing for domains such as .coke or .google. ICANN has recently decided to delay its plans until it investigates the problem further.

More Satyam Customers Consider Exits

Clients of outsourcer Satyam Computer Services continue to leave the fraud-stricken company despite its attempts to restore internal stability and bring in a strategic partner to see it through its financial crisis. Former Satyam Chairman Ramalinga Raju admitted in January to falsifying more than $1 billion in assets while overstating quarterly earnings and revenue by up to 28%, causing a 75% drop in the company's stock. So far, more than 40 clients have left or are planning to leave Satyam, including IBM, State Farm Insurance, Citigroup, Merrill Lynch, GlaxoSmithKline, and Coca-Cola. Nissan and Pfizer are also believed to be considering other options.

Report: Printer Market Struggling

According to a new Gartner report, the printer, copier, and multifunction device market reported a 5.9% drop in the number of shipments for 2008, compared with 2.9% growth in 2007. Analysts also don't expect the market to recover until well into 2010. Gartner blames companies opting to hold off on major purchases and extending the typical three-year replacement cycle as key reasons for the continued decline. It's not all doom and gloom for printers, though; Gartner reports that shipments of color page copiers/MFPs increased 13.2% in Q4, which marks the third consecutive quarter of growth.

IT Spending A Mixed Bag For 2009

As the economy struggles to reignite the engine of growth in 2009, those responsible for IT budgets are planning to make some spending adjustments in the months ahead.

London-based Datamonitor surveyed IT managers, CIOs, and IT decision makers in the United States, UK, Spain, Australia, France, Germany, Italy, Benelux (Belgium,

the Netherlands, Luxembourg), and Nordics (Denmark, Finland, Iceland, Norway, Sweden) to determine how IT budgets will fare in each country in the coming year. About 8% of those surveyed say they plan to significantly decrease their IT budget in 2009, which is up from just 3% of those surveyed six months prior. The group planning to slightly decrease budgets also grew from 8% to 12% between the first and second half of 2008. The percentage that plans to keep the IT budgets flat was up to 54% compared to 51% from six months ago. About 20% of the respondents say they plan some kind of IT spending cuts, but 26% plan to spend more on IT (19% plan to spend slightly more; 7% significantly more).

Companies Most Impacted

Daniel Okubo, technology analyst at Datamonitor, says, "Our most interesting finding was that when we compared our results to a recent report conducted by the IMF (International Monetary Fund), which forecasts GDP growth, the countries they said were going to be worst affected in 2009 were the U.S., Spain, France, the UK, Italy, Germany—the major developed economies. Countries in which GDP growth was still positive were Australia, Benelux, and Nordics. When we compared that survey to the survey we conducted of IT decision makers in those same countries, we found that our results correlated almost exactly."

But Okubo still sees growth potential. "Even in the countries [most] affected, such as France, the UK, and Italy, there are still opportunities. . . . Vertical markets, including the media industry, energy and utilities, government, communications, healthcare, and education, are all experiencing stable IT spending. Worst hit were the insurance agencies, retail banking, financial markets, and pharmaceuticals."

Over the next six months, Okubo expects IT spending to continue to trend downward proportionally to that country's GDP slump. "And if you follow the consensus that the economy is going to get worse in 2009, then the logic is that IT budgets are also going to be negatively affected."

by Andrew Leibman

Scale Back Storage Power

Shuffling Your Data Or Moving To The Cloud Can Help Decrease Power Consumed By Storage

by George Crump
• • •

THERE ARE TWO KEY POWER CONSUMERS when it comes to storage: the physical drives themselves and the shelves that they go in. According to a 2008 IDC report, the total cost to power and cool a drive is about 48 watts per drive: 12 watts are consumed by each hard drive, 12 watts are consumed by the storage shelf (HBA, fans, power supply), and an additional 24 watts are required to cool the hard drives and the storage shelf. When you consider that most storage shelves hold at least 12 drives, it's easy to see that SMEs must work hard to control storage power use.

Focusing on storage power efficiency is environmentally friendly and helps you save money, which is a key theme for every area of the data center in today's economic climate. Here are some specific steps and inexpensive add-ons you can implement in your storage environment to help reduce your power consumption.

Reorganize Data

"The first step is to reorganize your data," says Steve Harding, director of marketing for Dallas-based Tek-Tools (www.tek-tools.com). "Most customers have far more capacity than they actually need, and by creating smaller array groups that have less assigned capacity, a customer could reorganize data so that [fewer] shelves of storage

not there because it has to be retained or [is needed] to meet a legal compliance; most of it is there because no one has taken the time to delete it, or it is there 'just in case,'" says Tony Cerqueira, president of Cofio Software (www.cofio.com).

This data needs to be understood and managed. Data retention policies should be created and adhered to, and the stored

information should be managed either manually or through software that clears off old data. "Only data that needs to be retained for a legal compliance reason or that will have value in future research should be maintained," says Cerqueira. "Regardless,

> **"By creating smaller array groups that have less assigned capacity, a customer could reorganize data so that [fewer] shelves of storage would actually be needed. These shelves could then be powered off until such time as they are needed again."**
>
> *- Tek-Tools' Steve Harding*

would actually be needed. These shelves could then be powered off until such time as they are needed again."

Turning off shelves of unused storage can be a challenging task. Most array vendors suggest writing data across shelves for additional redundancy; even when trying to minimize the quantity of physical drives consumed, there is still a need to have some multishelf redundancy. Therefore, the goal is to balance power efficiency by limiting the number of shelves without reducing availability. Although this can be done manually, storage administrators should consider tools that allow them to better understand what storage is where.

Reorganizing data to turn off storage shelves is also going to require getting rid of all or much of the data on disk, so knowing what this data is and why it is still being stored is an important consideration. "Most of the data stored on disk today is

all of this data needs to be migrated to a secondary storage based on sound data retention policies."

- Reorganizing your stored data can free up space or even allow you to shut off entire drives or servers.
- Hosted service providers can offset the costs associated with increasing data stores by handling the power and cooling for you.
- Compressing stored data can reduce the amount of storage needed and increase storage performance.

Consider The Cloud

Another power-saving option, albeit one that requires a small outlay in expense, is to move your archived data to a cloud storage service. Cloud storage lets an SME leverage the Internet to transport certain types of data—for example, archived data—to another data center whose sole purpose is to manage storage.

"By storing data with a cloud storage provider, overall power consumption for data storage is minimized," says Moe Kermani, CEO and president of Bycast (www.bycast.com). "The provider reduces power usage by consolidating data and optimizing its storage across multiple customers while making the most power-efficient choices possible for its centralized storage system. The end user reduces power consumption and capital costs by not having to maintain or grow infrastructure for storage, power, and cooling on premise."

Moving to the cloud may concern some customers that have high-risk data governed by legal compliance guidelines, but many service providers are able to maintain those standards. At a minimum, cloud storage is an ideal way to store old data that does not need to be legally retained but is not ready for deletion.

Compress Your Storage

An option that can complement or be used in place of data reorganization is to compress active storage. "Using real-time compression appliances, storage administrators can effectively cut the required storage space by at least 50%, and they can enhance their storage performance and utilization," says Peter Smails, vice president of worldwide marketing at Storwize (www.storwize.com).

Once compressed, the data can still be reorganized as described above. Real-time compression is unique in that it works not only on passive data but on active primary storage data, as well. "Unlike other data reduction technologies, real-time compression addresses the problem [with] primary storage [by] creating capacity, cost, power, and cooling benefits throughout the entire data life cycle." says Smails.

Top Tip: Save Power By Doing Fewer Backups

One of the key things administrators can do if they have tape libraries or are doing backups to disk is run fewer backups. Although this may sound like blasphemy, the fact is that many IT professionals don't take advantage of what they have. "By leveraging disk or automation, customers should be able to do mostly incremental backups and do [fewer] full backups," says Bob Koecheler, senior vice president of worldwide sales for Spectra Logic (www.spectralogic.com). "In many environments, full backups run all night, if not all weekend. . . . Doing fewer full backups means that the tape drives run at full power less

often, and if disk is being used with tape, less disk has to be maintained and powered because most of the full backups can reside on tape."

Tape can also be leveraged for data reorganization and compression, and unlike a disk drive, an idle tape uses no power for maximum efficiency. Koecheler suggests that the tape library be able to utilize technology that will allow the user to know that the integrity of the tape media is constantly monitored; that way, when a restore from the archive occurs, there is confidence that it will work.

Desktop Power Savings

Endpoint Power Consumption Could Be Costing You A Fortune

by Drew Robb

• • •

END POINTS ARE EVERYWHERE, from desktops and notebooks to monitors and printers, and whether they're actively used or not, they are sucking tons of power and costing organizations a fortune. The good news is there are several ways to slash the power bill.

Powering Off

Not so long ago, a debate raged as to whether it was better to turn off equipment at night or leave it running. One argument was that it might be better to leave the hard drives spinning than to have them started and stopped on a daily basis. Fears about increased failure rates from starts and stops, however, are no longer a major issue.

These days, the attention has shifted to how to eliminate power waste from those machines. Having someone go around and turn off all desktops, printers, and other equipment at the end of the workday or on weekends can produce significant savings.

"The best way to save money with end points is to shut off the power at night, during holidays, and on weekends when the equipment would otherwise be powered on," says Kenneth Brill, executive director of the Uptime Institute. "This can reduce consumption by 30 to 75 watts per machine."

Take the case of a city where electricity costs 8 cents per kilowatt hour. That equates to annual energy savings per machine of around $24, as well as a decline

Top Tip: Use What You Already Have

While it's true that you can buy power management software that can save money in terms of desktop consumption, you may already have the basics for such a system in what you already have deployed on the desktop or laptop. Windows Vista, for instance, includes power management features that provide more efficient sleep states after 60 minutes of idle time.

"Even if someone leaves the PC powered on overnight, the system will by default go into a sleep state after an hour to help save power," says Warren Ross, global director of endpoint product marketing at Capgemini (www.capgemini.com). "Microsoft testing has shown that the default power management settings could save businesses up to 46% in power bills."

Further, the remote power-up capabilities of some processors mean that even PCs in these Vista sleep modes can now be remotely and securely powered up as needed for updates and patching.

in the associated power and cooling overhead. Although it may not seem like much, an organization with 1,000 desktops may have as many as 2,000 total end points. That's an annual savings of $48,000.

"Conservatively, organizations can save 40% of desktop energy use or more," says Warren Ross, global director of endpoint product marketing at Capgemini (www.capgemini.com). "There is a simple step

which can be taken that does not require the purchase of any hardware or software. SMBs can cut power consumption and save money, critical for these trying economic times, by implementing a policy requiring employees to shut off and power down their computers before leaving at night."

Centralized Power Shutdown

Depending on users to turn off their own machines usually doesn't work. Assigning someone this duty is a better approach. But the most effective way is to install computer management or power management software to turn off networked devices (not just PCs) when not in use.

"Much attention on power consumption has focused on the data center, but PC power consumption in an organization can also be significant, especially given steadily rising electricity prices," says Federica Troni, principal analyst at Gartner. "IT organizations should recognize that the greatest savings come from employing power management features."

If power management features are activated on all devices, though, Gartner advises companies not to switch off or unplug desktops after hours because doing so may mean that software updates and patches can't be performed, technicians can't maintain or repair machines remotely, and backups can't be done. In organizations where these factors are not a concern and won't impact productivity, unplugging machines brings further power reductions and additional cost savings.

Right Sizing

It's well known that every user wants the most powerful processor, the beefiest machine, and the most RAM, but you shouldn't give it to them unless their degree of productivity justifies it. The desktop electricity footprint can be cut down by right sizing of desktop components. Every watt reduced at the CPU, for example, saves an additional watt or more on the fans, power supplies, power distribution units, uninterruptible power supplies, and HVAC systems.

If you are in the midst of rolling out better processors or a RAM upgrade to your user population, for instance, put the project on temporary hold and re-evaluate the power consequences. Take the case of memory: Adding a little more memory might equate to 10 more watts. Over the life of the desktop, that unneeded 10 watts has an energy cost of $28 per year, according to Brill.

"Depending on type, memory consumes energy whether used or not," says Brill. "Right sizing of desktop components is a good way to cut energy costs."

Utilization Inventory

Another trick is to be on the alert for unused equipment. Almost every office has desktops, printers, or other devices that are either not used at all or are used only a few times a month. The best way to go about finding these unused assets is to conduct a utilization inventory on end points. Go from desk to desk and find out what is there. The likelihood is that at least a couple of machines are sitting unused, gathering dust.

"Old equipment needs to die, so it is smart to turn off and remove comatose desktops," says Brill. ▣

> "The best way to save money with end points is to shut off the power at night, during holidays, and on weekends when the equipment would otherwise be powered on. This can reduce consumption by 30 to 75 watts per machine."
>
> *- Uptime Institute's Kenneth Brill*

News

Study Shows Immigrants Returning Home For Work

A recent study from the Ewing Marion Kauffman Foundation found that restrictions on foreign workers may have a negative effect on America's rising unemployment rate.

Vivek Wadhwa, one of the study's researchers, says, "In the past, America has been the only land of opportunity, and we've taken for granted that the most skilled, highly talented people will come here. The results show that countries like India and China are offering greater opportunities to immigrants." Wadhwa goes onto say that, "when immigrants went back home, they saw greater job opportunity and the study respondents said they were doing much better in their careers. They felt they were moving up in the company hierarchy, had a better quality of life, [and were] growing faster and achieving more success than in America."

Would the loss of immigrant brain power hurt the United States? The study states that immigrant-founded, U.S.-based companies employed 450,000 workers and generated $52 billion in revenue in 2006. Immigrants founded more than a quarter of all U.S. engineering and technology companies started between 1995 and 2005, including more than half in the Silicon Valley. Additionally, the Kauffman Foundation indicates that immigrant inventors contributed to more than a quarter of the United States' global patent applications.

Study, Then Return Home

The study surveyed 1,200 Indians and Chinese who worked or studied in the United States and then returned home. About 80% have master's degrees or doctorates in management, technology, or science. More than half of those surveyed have already or plan to start their own businesses, and only 25% say they are likely to return to the United States.

"It's very likely their talents will now benefit the countries they return to. The U.S. government and business community must find better ways to offer good jobs and place less restrictive visa policies to recapture many of the surveyed immigrants," Wadhwa says.

Many of the returnees cite career and quality of life as the main reasons to return to their country. About 87% of Chinese and 79% of Indians surveyed say that the growing demand for their particular skill set was a key factor. Family considerations are also strong motivators: 89.4% of Indians and 79.1% of Chinese indicate that being close to family and friends made a significant impact in the choice. The limited availability of H-1B visas contributes to the reasons for immigrants returning home for work.

by Nathan Lake

Black Box ServSwitch Wizard 8-Port DVI Dual-Link (USB) is ideal for users who depend on high-resolution video performance and need the flexibility to use multiple peripheral devices.

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The ServSwitch Wizard™ 8-Port DVI-Link (USB) (KV2008A) from Black Box is the first product to feature USB True Emulation. This breakthrough technology ensures that the full characteristics of the connected USB peripherals are passed to every system, so specialized features are quickly recognized on the attached devices. What's more, each computer retains this information—even if the device is plugged into another computer.

The switch lets users connect to up to four USB peripherals. Thanks to its USB True Emulation technology, the switch supports HIDs (human interface devices) while still working with traditional USB. It avoids many of the limitations found in traditional emulations, enabling instantaneous switching and hotkey support.

When a user connects USB devices, the switch simultaneously emulates the character

of the devices to all computers. The switch's architecture combines transparent USB 2.0 protocol with emulated keyboard and mouse control. There are two dedicated keyboard/mouse USB ports on the switch's console plus two USB 2.0 transparent ports for any USB 2.0 peripherals.

The user can share high-end video and any four USB peripherals (including the keyboard and mouse) between up to eight workstations. The switch offers true DDC EDID support. Switching can occur via hotkeys, mouse, dry contacts, or even RS-232/V.24. The ServSwitch Wizard 8-Port DVI Dual-Link (USB) is ideal for users who depend on high-resolution video performance and need the flexibility to use multiple peripheral devices.

BLACK BOX®
NETWORK SERVICES

SeriousBit NetBalancer is an Internet traffic control and monitoring tool designed for Windows XP/2003/Vista.

+373-7945-3294

www.seriousbit.com

Internet Traffic Control

SeriousBit NetBalancer

How do you combine required network activities without getting slowed by bandwidth-hogging activities? Most traffic-shaping tools set speed limits for applications and processes, though it is not very convenient. For example, you limit your downloading speed and surf your favorite Web site. When you are done with surfing, the bandwidth is free, yet your downloading speed is still limited. Dealing with limits implies constant tuning of your traffic-shaping program.

With SeriousBit NetBalancer, such problems are obsolete. In addition to traffic limits, you can set download and upload priorities for all applications. Applications with higher priority get more bandwidth than those with lower priority.
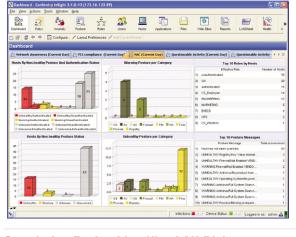
Unlike other traffic-shaping software, NetBalancer does not limit low-priority applications when high-priority ones don't use the network. The limits are changed automatically according

to priorities, giving NetBalancer an advantage over other similar tools.

NetBalancer lets you:
• Set download and upload network priority for any process. Current priorities include High, Normal, Low, Block Traffic, Ignore Traffic, and Limit Traffic
• Set download and upload speed limits
• Show all system processes with their in and out network traffic speed
• Show current connections for any process
• Show downloaded and uploaded traffic for any process since NetBalancer's start
• View overall system traffic as a graph
• Show last 15 seconds of traffic
• Fine-tune priorities with Level Severity

SeriousBit
Performance and Reliability

ConSentry Network's ConSentry InSight Command Center now offers a real-time alert and correlation engine to help IT workers identify nonbusiness applications and devices on an enterprise's LAN posing security risks.

Free to existing customers with current support contract; LANShield Switch pricing starts at $4,995

(408) 956-2100

www.consentry.com

Correlation Engine Identifies LAN Risks

ConSentry Networks ConSentry InSight Command Center
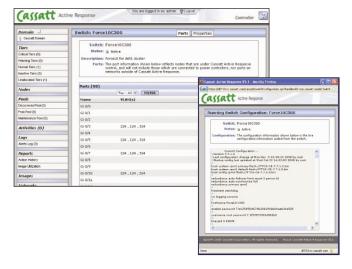
ConSentry Networks realizes that current financial restraints are forcing enterprises to juggle keeping intellectual property safe while simultaneously operating under tightening budgets. To that end, the ConSentry InSight Command Center software running within the company's NAC switches and controllers now includes a real-time alert and correlation engine that pinpoints nonbusiness usage of LAN-based devices and applications posing a potential risk to an enterprise's data. Further, new dashboards, including NAC and Questionable Activity versions, provide IT staff with visual details that identify the specific users, devices, and applications posing that risk.

Also aiding in protection is new end-point posture validation software that's integrated into ConSentry's LANShield platform software. The software includes a permanent agent for managed devices and a dissolvable agent for guest

devices that are unmanaged. The software also features automatic remediation abilities. The end result is considerably better end point protection and operational savings.

The core of the engine is a rules database that oversees and compares a range of inputs to sniff out risks to data and LAN availability. A set of included predefined rules automatically highlights the most common risks currently to LANs and reports the findings via dashboard alerts and reports. Its ability to drill down to Layer 7 activity as part of the stateful flow analysis provides IT staff with the information needed to take immediate action and for longer-term items such as LAN usage blueprints, audits, and forensics.

CONSENTRY
NETWORKS

Force 10 Networks Virtualization Framework utilizes a suite of advanced terabit-enabled network virtualization software to make virtualized environments easier to manage.

(866) 600-5100

www.force10networks.com

Manage Virtualized Environments With Ease

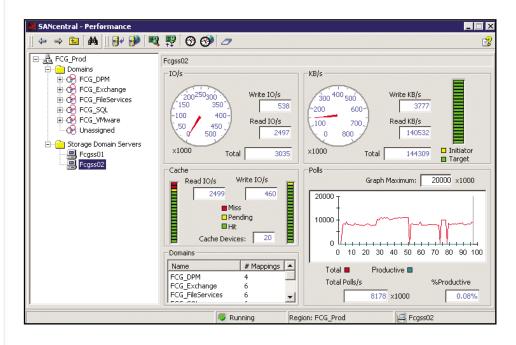# Force10 Networks Virtualization Framework

Performance requirements are always changing, so data center managers need to have both visibility into the network's performance and the tools to ensure the data center is running in the most cost-effective way. Force10 Networks delivers those capabilities through its new Virtualization Framework.

Force10 Networks' Virtualization Framework suite combines three terabit-enabled network management programs—VirtualControl, VirtualScale, and VirtualView—to let data center managers build, design, troubleshoot, and benchmark network and application performance in virtualized environments. With the software components of the Virtualization Framework suite, users can partition physical network assets to virtualize logical boundaries, consolidate physical network fabrics to virtualize physical boundaries, and inspect and automate network behavior.

VirtualControl and VirtualScale help data centers eradicate the need for spanning tree protocols, develop network durability, and segment traffic for specific applications to boost manageability, while reducing troubleshooting difficulties at both Layer 2 and Layer 3 environments. VirtualView utilizes sFlow, a standards-based data collection protocol, to give users both real-time traffic monitoring and the ability to orchestrate resources through policies using open software and technologies. These technologies include an industry-standard CLI (command-line interface) and SNMP. In the future, XML-based commands and control provisioning middleware will also be included. The Virtualization Framework is part of Force10 Networks' operating system, FTOS.

FORCE10

STORAGE

Fairway Consulting Group is a Premier Channel Partner for DataCore Software, with products focusing on storage virtualization, management, and networking.

www.fairwayconsulting.com

(866) 516-5491

Best-Of-Breed Storage Virtualization

DataCore Software From Fairway Consulting Group

Is your company considering or already implementing virtualization technologies? Planning your budget for new hardware? If so, you might be concerned about where to begin or whether your strategy is the best one for your enterprise.

Fairway Consulting Group offers a combination of much-needed services based on "best-of-breed" virtualization technologies, including storage, server, desktop, and disaster recovery. As a channel partner with several leading virtualization product manufacturers, Fairway Consulting helps small to enterprise-level companies focus on issues of sustainability, explosive data growth, increased performance

demands, end-of-life hardware, and disaster recovery.

Fairway Consulting Group is a Premier Channel Partner for DataCore Software, with products focusing on storage virtualization, management, and networking. DataCore products, including SANmelody, SANsymphony, SANmaestro, and Traveller CPR, offer a combination of features and functionality to suit any enterprise's needs.

DataCore SANmelody overcomes the high cost barrier and complexity of traditional SAN storage. SANmelody converts standard

Intel/AMD servers, blades, or VMs (virtual machines) into fully capable storage servers that virtualize disks and serve them over iSCSI or Fibre Channel to an existing network of application servers.

Why DataCore Over Virtual Hardware Platforms?

DataCore is intelligence only, allowing the flexibility that conventional hardware virtualization cannot provide. Why buy all new hardware or buy more hardware than you really need? DataCore allows you to use your current hardware to its maximum utilization while

giving you increased utilization with your new hardware.

Here are a few of the features you can expect from DataCore:

- Completely hardware independent
- 65% increased storage utilization on average
- World-record performance I/O
- True HA with active/active paths
- AIM (asynchronous mirroring over IP)
- Snapshot (pointer-based or image)
- 100% investment protection on upgrades
- iSCSI or Fibre Channel-ready

NETWORKING & VPN

StrataScale's IronScale provides fully automated, on-demand managed server hosting based on physical, nonvirtual enterprise-class x86 servers.

(866) 955-4519

www.stratascale.com

Increased IT Infrastructure Flexibility, Control & Efficiency

StrataScale IronScale

Speed, ease, reliability, and flexibility. These are the traits you'll find in StrataScale's IronScale, the world's first fully automated managed hosting solution. Based on physical, nonvirtual dedicated x86 servers, IronScale provides on-demand remote control monitoring and management of dedicated server environments. StrataScale emphasizes IronScale's capability of offering all of its features in a completely automated, nonvirtual environment. Add in cloning, snapshots, and auto failover abilities, as well as reliable integrated firewall, Internet, and backup services, and IronScale does in minutes what once took hours or days.

As more small to medium-sized enterprises seek increased efficiency and control of their IT infrastructures while simultaneously being faced with thinning resources, outsourcing IT needs is becoming more prevalent. IronScale helps SMEs cost-effectively scale IT infrastructures as requirements increase, thus reducing capital purchases, overspending, and overcompensating for resources.

IronScale is available in three bundled server environment levels, with each providing 70GB of RAID-configured storage per server. Server Level 1 provides two cores and 4GB RAM, Level 2 offers four cores and 8GB RAM, and Level 3 furnishes eight cores and 16GB RAM. Each level includes a choice of Red Hat Linux 4.4/5.0 or Windows Server 2003 Standard; 1Mbps dedicated bandwidth per server; two networks and eight external IP addresses per client with 100 internal addresses per network; VPN for one site-to-site configuration and five remote users per client; an integrated enterprise-class firewall for 50,000 concurrent connections; KVM support; and more.

Upgrades options include backup, load balancing, and SSL acceleration; enterprise-class SAN (in 10GB increments); and additional burstable bandwidth in 1Mbps increments.

NETWORKING & VPN

IntelliAdmin Remote Control 3.1 is a remote control solution that allows network administrators quick and easy access to any computer on the network.

Starts at $159

(586) 219-7830

www.intelliadmin.com

Connect With Ease

IntelliAdmin Remote Control 3.1

Two main concerns for companies nationwide are efficiency and cost—the need to get more done in less time in order to save on expenses. IntelliAdmin offers an application that can help companies remotely connect to other computers on the network to diagnose and solve problems, train workers, or perform maintenance in no time flat.

Remote Control 3.1 automatically installs its agent over the entire LAN so that com-

panies can quickly and easily connect to and control network computers. With support for Windows Server 2008, Vista, Windows 2003, Windows XP, and Windows 2000 (32- and 64-bit), Remote Control 3.1 can integrate into any company network.

Remote Control's 256-bit AES encryption ensures that user credentials and data are safe, while additional settings allow companies to specify which single ac-

counts or Active Directory security groups have access to network computers. Users can even be prompted to request permission before connecting to a machine.

Remote Control 3.1 also allows users to add a VNC user account so that administrators can access machines via VNC clients such as an iPhone. With multiple ways to connect and troubleshoot, issues are resolved in a timely manner.

Game-Changing Data Protection

Asempra Business Continuity Server

The Asempra Business Continuity Server consolidates backup, business continuity, disaster recovery, recovery management, compliance, and governance into a single product.

(408) 215-5800

www.asempra.com

ASEMPRA

Asempra's Business Continuity Server is a game-changing data protection solution that focuses on what really matters—recovery of business- and mission-critical data—and, in the process, solves the real complexity and cost issues associated with enterprise data protection.

In order to successfully protect data in today's sophisticated application environment, as well as to survive tomorrow's challenges, one must create an integrated recovery platform that is capable of handling all types of failures, whether they occur singly or concurrently.

Asempra's Business Continuity Server provides application-driven data recovery, reducing recovery time due to a patented innovation called VODR (Virtual On-Demand Recovery). This innovation allows access to data on-demand so the application can start running immediately after a recovery is started, even before the entire protected data set is recovered. Recovery of the data that the application is not currently using continues in the background while this on-demand recovery is taking place. This enables the application to be available within seconds or minutes instead of waiting for a full recovery to complete.

The management complexity and high cost of solving data protection and recovery issues today is rooted in the fact that it takes multiple tools to get the job done. This leaves IT professionals spending hours trying to integrate disparate tools and manually recover data in an attempt to simulate a real-time infrastructure needed to support their business operations. Business Continuity Server eliminates these issues by consolidating the needs of backup, business continuity, disaster recovery, recovery management, compliance, and governance into one solution that dramatically reduces the cost and complexity of mid-market IT data protection.

Get Onsite & Offsite Backup

Barracuda Backup Service

**Barracuda Backup Service
Integrates Local & Secure Offsite
Backup For Disaster Recovery**

Starts at $49 per month

(888) 268-4772
www.barracuda.com/backup

BARRACUDA
NETWORKS

The Barracuda Backup Service is an affordable, integrated local and offsite data backup and disaster recovery solution that combines an onsite appliance with a monthly subscription that replicates data to two offsite locations. Combining local and offsite storage provides the best of both worlds—onsite backups for the fastest restore times and secure, offsite storage for disaster recovery.

Designed for organizations of any size, the Barracuda Backup Server creates a local copy of data and efficiently transfers the data offsite without any additional burden on production servers. Offsite storage is monitored and managed by Barracuda Central as part of the Barracuda Backup Subscription, and tech support and emergency restores are included, as well.

Deployed in varied, complex IT environments, the Barracuda Backup Service protects mission-critical business information, utilizes industry-standard networking protocols to access data for backup, and is compatible with all major operating systems.

The Barracuda Backup Service Web control panel makes it easy to manage and back up data to multiple units at one or more locations—from anywhere. It also provides control of settings, reports, restores, statistics, and account information in order to manage Barracuda Backup Servers and Barracuda Backup Subscription plans. In addition, customers receive automated alert notifications via the Web control panel when conditions affecting backup service are detected.

LeftHand Networks' SAS Starter SAN & SATA Starter SAN let you scale your network up to 320 disk drives.

4.8TB SAS Starter SAN starts at $35,000; 12TB SATA Starter SAN starts at $30,000.

(866) 447-7267

www.lefthandnetworks.com

A Starter SAN

LeftHand Networks SAS Starter SAN

Deploying a virtual server environment can become complicated. You'll likely need to work around system performance bottlenecks, and those bottlenecks can be more difficult to troubleshoot due to the increased number of connections on your SAN. LeftHand Networks' SAS Starter SAN handles the performance issues for you by automatically balancing data volumes across disk drives, network connections, and processors. The SAS Starter SAN also includes management tools for replication, thin provisioning, and snapshot capabilities.
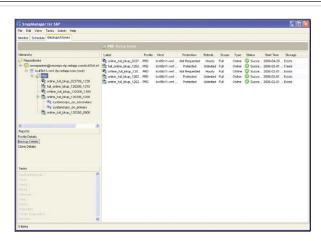
Ideal for first-time virtualization projects, the SAS Starter SAN allows you to start with what you need and scale

your storage network, nondisruptively, to more than 320 disk drives. Additionally, each SAS Starter SAN includes standard SAN/iQ software training and three years of support, as well as remote installation assistance. For those with higher capacity needs, LeftHand Networks also introduced a SATA Starter SAN available in a 12TB storage capacity—33% higher than the previous generation and 25% cheaper in terms of cost per gigabyte. The SATA Starter SAN kit features dual active/active load balanced controllers, 9GB memory and cache, four 1Gb Ether-

net network ports, and redundant power and cooling.

Raw capacity for the SAS Starter SAN starts at 4.8TB, using 300GB (15,000rpm) SAS disk drives. The SAN/iQ Windows Solution Pack handles up to 10 servers, and the SAS Starter SAN supports 4,000 iSCSI sessions, as well as 1,000 volumes and snapshots. LeftHand Networks' SANs are composed of multiple storage nodes that are clustered together. The SAN/iQ Network RAID aggregates storage nodes to create an open iSCSI SAN you can manage as a single entity.

HP LeftHand NETWORKS an HP company

NetApp SnapManager 3.0 for SAP offers better protection and easier management of your SAP data.

(408) 822-6000

www.netapp.com

A Turbo Button For Your Database

NetApp SnapManager 3.0 For SAP

With the relentless growth in the amount of SAP data companies must protect and make continuously available, a new version of NetApp's SnapManager backup, restore, cloning, and data protection application is most welcome. SnapManager 3.0 for SAP greatly speeds up backup and restore processes and also increases the frequency of space-efficient backup snapshots without having an adverse impact on database performance. Version 3.0's use of its Snapshot and SnapRestore technologies allows administrators to restore a database in seconds or minutes rather than hours.

SnapManager 3.0 can make copies of the system for

special purposes in a matter of minutes. This accelerates the process of testing patches and upgrades and performing quality assurance assessments. Developers, too, will appreciate the speed and ease of cloning the system for development purposes.

Another time-saving feature is SnapManager 3.0's ability to run customized scripts prior to or after cloning. This feature allows admins to make the process run unattended, so IT staff can be doing other tasks instead of babysitting the procedure.

In addition to time- and space-saving features, SnapManager 3.0 also enforces security. It strictly adheres to administra-

tor policy and enforces it throughout operation.

SnapManager 3.0 is certified for use with SAP NetWeaver Application Server with NetApp's BR*Tools backup and restore utilities. Its Backint Interface for SnapManager software component (version 1.0) can work with SAP NetWeaver AS Release 7.0 over BC-BRI HPUX, BC-BRI AIX, and BC-BRI SUN using Oracle10g Database. Version 3.0 of the Backint Interface for SnapManager can be integrated with BC-BRI LIUX 710 and BC-BRI W2K3 710 interfaces.

NetApp

Backplanes For SANs & Servers
Enhance StorPack T Series

Enhance Technology StorPack T Series provides internal or external SAS or SATA storage.

S23T: $135; S34T: $155; S35T: $175

(866) 537-5140

www.enhance-tech.com

ENHANCE TECHNOLOGY, INC.
Where Storage Begins

The StorPack T Series of RAID/JBOD backplanes from Enhance Technology is tough enough for embedded industrial and surveillance use, fast enough for high-definition video editing, and practical enough for backup and data protection duties.

Built of aluminum, which cools drives as it protects them, these high-density backplanes can store three, four, or five SAS or SATA hard drives. They can be mounted in external SANs or in two or three 5.25-inch drive bays in a server. The T Series supports 3Gbps SAS and SATA data connections for respectable performance.

Each unit has Enhance's unique T-shaped drive trays; in the S23T and S34T, the trays are individually lockable for security purposes. The trays are also removable and hot-swappable, which makes it easy for IT staff to add capacity as needed. It also facilitates off-site storage of backup drives, as well as project portability.

A quiet cooling fan resides in the backplane to aid in ventilation, which extends the drives' life spans. Each enclosure also features light pipes to relay visual signals from the activity LEDs. Enhance backs the StorPack T Series with a three-year warranty.

Recovery For OST Files
DataNumen Advanced Exchange Recovery 2.0

There are many hardware and software reasons, including server crashes or malicious software, that can make offline storage (.OST) files inaccessible. But such files still contain your mail messages and other items of your mail account that you may need. With DataNumen's Advanced Exchange Recovery 2.0, you can recover as much data as possible and save it as Outlook files.

Advanced Exchange Recovery 2.0 makes it easy to retrieve the contents of your mailbox, recovering mail messages, posts, folders, notes, appointments, contacts, and other mail account items from OST files and saving them as Outlook .PST files. Message properties (subject, date, to, from, etc.) and subobjects (attachments, embedded objects) are also recovered.

Because of a byte-level scan performed by an advanced algorithm, the program recovers all possible items in OST files. And it works where other similar solutions fail.

Advanced Exchange Recovery includes the ability to recover password-protected OST files or deleted items in OST files and OST files on any corrupted media. Plus, it can recover mail messages in plain text, RTF, and HTML format.

Other features include:
- Ability to convert Exchange OST files to Outlook PST files
- Support for Exchange Server 2007 and Outlook 2007
- The ability to recover and split oversized OST files
- Batch recovery
- Search features to find OST files on the local PC

DataNumen Advanced Exchange Recovery 2.0 makes it easy to retrieve the contents of your mailbox and save them as Outlook files.

$249.95 (single-user license)

(800) 998-8826

www.datanumen.com

DataNumen inc.

CRYPTOCard BlackShield ID is an all-in-one, two-factor authentication server for mediating access to networks, data, and applications.

Pricing starts at £30 per user

(800) 307-7042

www.cryptocard.com

Authentication Made Simple
CRYPTOCard BlackShield ID

If you're charged with securing data for your company, then you know that nothing less than a two-factor solution will do, but not all such products are created equal. CRYPTOCard's latest offering, BlackShield ID, is an end-to-end authentication platform that deploys and integrates quickly and lets you manage your authentication needs with ease.

The BlackShield ID server-based authentication platform employs a simple browser-based interface and is capable of restricting user access to networks, data, and applications until the user has been positively identified based on the firm's identity management policy and security needs. The offering also lets customers keep their systems compliant and auditable as required by law. Black-Shield ID includes everything you need to get started and backs CRYPTOCard's tokens with long warranties to reduce support and administration costs for the system's lifespan.

Features include workflow and provisioning automation, real-time reporting and management by exception, support for existing in-house security policies, comprehensive logging and reporting capabilities, support for millions of users and the ability to execute hundreds of authentications per second, plug and play out of the box, and compatibility with a range of tokens. BlackShield ID also supports new tokens, including SMS, USB, smart card, and software tokens.

BlackShield ID ships with agents to help customers integrate the offering with applications, including Citrix, SharePoint, VPN, and domain logon. Other bundled features include self-enrollment and bulk enrollment token distribution tools, multidomain authentication, and support for a range of databases.

CRYPTOCard

Fortinet FortiWeb-1000B offers application and XML firewalling to secure Web and database applications.

Starts at $19,995

(866) 868-3678

www.fortinet.com

Make Your Web Application Protection Rock Solid
Fortinet FortiWeb-1000B

If you're relying on the native security code of your Web applications to protect your Web presence and back-end databases, then you probably already know what a complicated, unreliable, and expensive solution that can be. Fortinet's FortiWeb-1000B takes a cost-effective umbrella approach to Web-based attack prevention and performance tuning; the product is ideally suited to the Web application infrastructures of medium-sized and large enterprises, ASPs, software-as-a-service providers, and cloud computing providers.

FortiWeb-1000B offers application and XML firewalling to secure those platforms, balance loads, and improve data exchange performance between Web applications and their corresponding databases. The FortiWeb-1000B delivers simplified deployment and maintenance through a single centralized console. Features include FortiASIC CP6, which enables the appliance to perform SSL and XML encryption coprocessing to accelerate transaction times, offload encryption functions, and reduce server load.

Other features include improved resource management and stability through traffic load balancing, the ability to route content across multiple Web servers, and active/passive failover with full configuration synchronization. FortiWeb-1000B is fully PCI version 1.2-compliant and also has an easy to use graphical user interface that gives users full view and control of System, Router, Server Policy, Web Protection, and Log and Report components of the system.

Fortinet also offers its FortiDB appliance, which automatically monitors, audits, and scans databases and delivers end-to-end data security when combined with the FortiWeb-1000B.

FORTINET

- dtSearch products have received hundreds of excellent press reviews.
- The dtSearch Web site also has hundreds of developer case studies posted at www.dtsearch.com.

dtSearch Version 7.6 releases cover both developer products, with new expanded sample code for use with Microsoft's most recent Visual Studio version, and enterprise products, with updates to the user interface.

(800) 483-4637 (800-IT-FINDS)

www.dtsearch.com

The Smart Choice For Text Retrieval® Gets Better

dtSearch Version 7.6 Releases Extend 64-Bit Capabilities In Enterprise, Developer Products

dtSearch, a leading supplier of enterprise and developer text retrieval software, has extended its 64-bit product line. The new release covers both dtSearch's enterprise and developer products, including native 64-bit versions. For the developer products, the new release provides expanded sample code for use with Microsoft's most recent Visual Studio version. For the enterprise products, the new release updates the user interface, providing a greater selection of "look and feel" options for users.

The Version 7.6 release includes:
dtSearch Desktop with Spider, which instantly searches files on a PC, and **dtSearch Network with Spider**, which searches across a network. Both instantly search and display, with highlighted hits, a variety of file types, including email messages along with the full text of email attachments. Through the Spider, both applications can also add Web content to a local or network search.

dtSearch Web with Spider quickly publishes a large volume of instantly searchable data to an IIS Internet or intranet site. dtSearch Web works as a point-and-click solution, with no programming required. The Spider provides integrated support for local and remote Web site data.

dtSearch Publish lets users easily publish instantly searchable document collections or Web site content to portable media such as CDs, DVDs, and external hard drives.

The dtSearch Engine lets developers add dtSearch functionality to 32-bit and 64-bit applications. The **dtSearch Engine for Win & .NET** supports C++, Java and .NET, including a .NET Spider API. The new release provides expanded sample code for use with Microsoft's most recent Visual Studio version. The **dtSearch Engine for Linux** supports C++ and Java.

The dtSearch product line features:
Terabyte Indexer. dtSearch products can index more than a terabyte of text in a single index. They can also create and simultaneously search an unlimited number of indexes. Indexed search time is typically less than a second, even across terabytes of data.

File formats and databases. dtSearch products include integrated file parsers and

converters for a wide range of popular file types. dtSearch products display existing Web-ready content (HTML, PDF, XSL/XML, etc.) with highlighted hits, and with all images, links, and formatting intact. For other file types, such as MS Office, OpenOffice, and ZIP, built-in proprietary converters render these document types as HTML, with highlighted hits, for display in a Web browser. The dtSearch Engine includes a data source API for indexing SQL-type databases and other non-file data, including BLOB data.
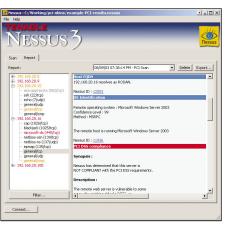
Spider. The dtSearch Spider adds local or remote Web site content to a searchable data collection. The Spider supports public sites, intranets, HTTPS, password-accessible sites, and forms-based authentication sites. The Spider supports both static and dynamic Web-based content, including ASP.NET, PHP, MS CMS, and SharePoint, indexing to any level of vertical or horizontal depth. dtSearch products support integrated searches of local and remote content, including WYSIWYG hit highlighted display of Web-ready data.

Search features. Full-text and fielded data search options include: distributed or federated search options with integrated hit-highlighted display, fuzziness adjustable from 0 to 10 (to sift through typographical and spelling errors), synonym/concept/thesaurus (through a built-in thesaurus and/or user-defined synonym rings), Boolean (and/or/not), phrase, phonic, wildcard, bilateral proximity, directed proximity, stemming, natural language/vector-space relevancy ranking, variable term weighting, positional scoring, field-based relevancy ranking, data classification and filtering objects, numeric range searching, advanced date recognition, unindexed search (in addition to indexed search), and special forensics search options (text filtering of forensically-recovered data, credit card search, email search, etc.).

International language support. Built-in Unicode support covers hundreds of international languages (including right-to-left languages and Chinese/Japanese/Korean character processing options).

The Nessus Vulnerability Scanner is a network auditing tool designed to help users prevent data loss.

Pricing: A subscription to the Nessus Professional Feed is $1,200 per year per scanner with no limit on the number of hosts or number of scans performed.

410-872-0555

www.nessus.org

SQL Database Auditing

Tenable Network Security Nessus Vulnerability Scanner

Data loss is at the forefront of every IT and data center manager's mind, and these days, everyone is trying to avoid becoming the next victim of a data breach. Every extra bit of security counts, and Tenable Network Security has added another layer with the new capabilities of its Nessus vulnerability scanner.

Tenable Network Security has been adding features to the Nessus network vulnerability scanner for the past five years, including the ability to perform agent-less patch audits, industry-best system configuration analysis, application auditing, and hard drive auditing. Now, Nessus has the ability to audit different SQL database configurations.

This new feature is designed to allow corporate enterprise auditors and security consultants to be certain that applications are

adequately preventing data loss from attacks, as well as accidental release of sensitive data, by conducting full security audits of the underlying operating system and the SQL database configuration. Potential threats to the system include SQL injection attacks and direct database attacks.

Nessus supports the SQL audit policies of STIGS, the Center for Internet Security, and the Defense Information Systems Agency, as well as Oracle, MS SQL, MySQL, and more.

These new features are available only to Security Center and ProfessionalFeed subscribers. To make use of these capabilities, visit www.nessus.org.

Paragon Software Rescue Kit 9.0 Professional is a disk recovery, partition undelete, and troubleshooting application.

$99.95 per license

(888) 347-5462

www.paragon-software.com

Fix Unbootable PCs & Make Things Right Again

Paragon Software Rescue Kit 9.0 Professional

Problems that crop up while booting a PC, low-level hard drive failures, and unintentionally deleted partitions are some of the most disruptive issues that a user can encounter. But with Paragon Software's Rescue Kit 9.0 Professional, users in small or midsized organizations can resolve all of the above and perform other advanced tasks not possible using a command-line interface. The intuitive wizard-based operations are also easy to use for both technical and non-technical personnel.

In addition to curing boot issues and recovering partitions, Rescue Kit 9.0 Professional also lets users explore and adjust settings within the Windows system Registry in off-line mode, connect to shared network resources, securely delete data, reset a user's Windows OS password, and retrieve and

save important information from a disk when a system fails to boot.

The Rescue Kit 9.0 Professional also comes with the Paragon Rescue Kit Professional Standard Technician License, which lets organizations and users perform the software's functions on multiple machines. With the license, system administrators, technicians, and consultants can troubleshoot and resolve issues on an unlimited number of workstations and up to 10 servers on one location for one year; however, the software cannot be used on two systems simultaneously. This license supports any network size and architecture.

Product ✎ Releases

CLIENTS

■ HP Master Data Management Services, Information Quality Management Services & Information Governance Services

HP introduced several business intelligence offerings, including Master Data Management Services, Information Quality Management Services, and Information Governance Services, designed to ease governance and improve data accuracy to drive better business decisions. HP's Master Data Management Services let customers capture, manage, store, and use master data elements consistently across an organization. The Information Quality Management Services offering delivers accurate, consistent, and complete data to support informed decision-making. HP's Information Governance Services provide users with a template for consistent, available, accessible, auditable, and secure data gathering and management.

■ IBM Informix Dynamic Server & Software

IBM introduced its Informix Dynamic Server and software to improve sales prospects and limit expenses. The offering lets users in all industries—including health care, retail, and manufacturing—warehouse their data and conduct online transactions quickly and efficiently. The Informix database software ships with built-in analytical capabilities to deliver valuable insight into market conditions and customer preferences. The Informix Dynamic Server and software is available worldwide.

■ Lenovo ThinkCentre A58 & M58e

Lenovo announced the Lenovo ThinkCentre A58, a smaller, lower-cost option for small to medium-sized enterprises that require reliable, secure, and affordable desktop technology in a new design. Lenovo also released the ThinkCentre M58e, which serves many of the same needs as the A58 but also offers green features and is geared toward midsized to large companies. Both desktop computers feature Intel Core 2 Quad and Core 2 Duo processors, onboard DirectX 10 graphics support, support for up to 1TB of storage, up to 4GB of memory, and Blu-ray or DVD burners.

■ Magic Power Technology MPM-X12Y

Magic Power Technology announced the MPM-X12Y, a single-output 120W power adapter designed for medical equipment. The MPM-X12Y is equipped with active PFC and is CEC/Green Power- and Energy Star Group V-compliant. The MPM-X12Y comes with a universal AC input and four different output voltage models. Output voltages of +12-13.8V, +19-20V, +24V, and +36V are available.

■ NextComputing Flextop, Vigor & Evo

NextComputing announced that it is adding a 2.66GHz quad-core Intel Xeon LV5430 processor to its line of flextop computers, Vigor rugged portables, and NextServer Evo rackmount servers. The company says the move to include Intel's 5400 chipset will improve data flows across Intel Xeon 5400 series-based workstations and HPC systems through increased interconnect bandwidth. Additionally, NextComputing touts optimized system bandwidth, increased memory capacity, and improved network traffic processing while simultaneously reducing I/O latency. Users can expect up to 30% higher performance for most HPC apps and up to 50% higher performance for optimized workloads over previous-generation Intel quad-core CPUs, NextComputing states. The new CPU is specifically available in the NextDimension Pro and Pro HD, NextDimension Evo and Evo HD, Vigor Pro SD and Evo HD, and NextServer Evo.

■ Oracle Application Express Release 3.2

Oracle has announced Oracle Application Express Release 3.2, which enables organizations to change their Oracle Forms-based programs to HTML applications running within an Oracle Database. It is available for download from the Oracle Technology Network. One of the release's new features is Oracle Forms Conversion, which will convert most user interface components automatically and delivers tracking capabilities. By converting Oracle Forms-based applications to Oracle Application Express, developers can use Oracle Application Express' HTML template-making capabilities, declarative flash charting, and Web 2.0-style interactive reporting components.

MESSAGING & TELEPHONY

■ Alcatel-Lucent Support For OmniTouch 8400 Instant Communications Suite

Alcatel-Lucent announced that it will provide support for mobile devices and new applications for the newly rebranded OmniTouch 8400 ICS (Instant Communications Suite), a unified communications and collaboration offering. OmniTouch 8400 ICS features a wide range of capabilities that are designed to make business communications and collaboration easier in order to boost productivity and innovation while cutting costs. The new OmniTouch 8400 ICS has added integration of high-definition video for presentations, videoconferencing, and advanced voice messaging services. Additionally, OmniTouch 8400 ICS mixes telephony, PBX-agnostic messaging, and one-number services using IP-based SIP (Session Initiation Protocol), fax services, collaboration/conferencing services, mobility services, and XML Web services.

■ CommuniGate Systems AstraSync For CommuniGate Pro

CommuniGate introduced AstraSync for CommuniGate Pro, which is an ActiveSync client for BlackBerry smartphones. AstraSync offers two-way, over-the-air synchronization of email, calendar, and contact data. Additionally, it provides the same ActiveSync functionality to BlackBerry smartphones that is built into the Apple iPhone 3G and Windows Mobile devices. The AstraSync for CommuniGate Pro synchronizes a BlackBerry via a protected connection directly to a customer's CommuniGate Pro server. This eliminates the need to obtain and deploy middleware servers from RIM and other software developers. AstraSync can be installed over the air, and it offers an easy and efficient configuration wizard for the username, password, and address of the CommuniGate Pro server.

■ Polycom HDX Software Release 2.0.5_J

Polycom announced that the HDX 9000, 8000, 7000, and 4000 series telepresence systems now feature Joint Interoperability Certification, validated interoperability with IPv6 networks, and integrated FIPS 140-2 validation. With the Polycom HDX Software Release 2.0.5_J, these high-definition telepresence systems meet the U.S. government security, interoperability, and performance requirements, enabling purchasers to procure them through the Department of Defense Unified Capabilities Approved Products List. The Polycom HDX line of telepresence systems start at $5,999.

■ Polycom VVX 1500

Polycom unveiled its VVX 1500 business media phone that lets users take advantage of advanced VoIP capabilities, business-class video, and business application integration, all from the same device. The VVX 1500 business media phone is a personal videoconferencing system and a fully featured VoIP telephone with Polycom HD Voice. Other useful features are the integrated microbrowser that lets you view real-time Web content and the intuitive color touchscreen interface. The Polycom VVX 1500 starts at $1,099.

NETWORKING & VPN

■ Barracuda Networks Barracuda SSL VPN 680

Barracuda Networks announced the Barracuda SSL VPN 680, the latest member of Barracuda's SSL VPN product family. By leveraging existing SSL capabilities built into every modern Web browser, the SSL VPN 680 supports up to 500 concurrent users and is designed to be as simple to use as an Internet browser. The Web interface is designed to make it easy for administrators to monitor and maintain, as well as to provide granular access for greater control over individual resources. Pricing starts at $8,999.

■ BlueCat Networks Proteus IPAM & Adonis DNS/DHCP Virtual Appliances

BlueCat Networks announced several virtual appliances for IPAM and DNS/DHCP. Designed to help reduce customer costs, the Proteus IPAM and Adonis DNS/DHCP virtual appliances should make it easier than ever for organizations to accelerate software deployment and simplify management while leveraging their existing investment in virtual infrastructure. These products will integrate with Microsoft Active Directory to completely eliminate network accessibility problems by making it simple and secure for administrators to centrally deploy, manage, monitor, and audit IP addresses across an entire organization from a single Web-based interface.

■ Citrix Systems Enhancements For Citrix XenApp

Citrix Systems released enhancements for Citrix XenApp for Windows applications, featuring capacity planning, server provisioning, and seamless management tools. Combining XenServer with XenApp enables server consolidation for enterprise virtual architecture. XenApp 5 includes dynamic data center environment provisioning, logon preferences, local application of end-user networks, and preferential load balancing. This cost-effective solution offers on-demand service for streamlined application delivery.

■ Cittio Zeppelin Cloud Management & Monitoring

Cittio announced its new open-source cloud management and monitoring project, called Zeppelin. It's intended to address issues with application monitoring and infrastructure challenges. Project Zeppelin offers remote deployment and critical information based on assets, performance, auditing, benchmarking, and usage metering. Zeppelin supports Linux, Citrix XenServer, and VMware. Specifically, Zeppelin includes WS-MAN/CIM-XML for the cloud, a usage meeting platform, and open-source licensing. Overall, Zeppelin will support performance benchmarking and distribution of instrumentation.

■ Configuresoft ECM v5.1

Configuresoft announced version 5.1 of its ECM (Enterprise Configuration Manager). ECM 5.1 provides unified, cross-platform patch assessment and remediation, integrates configuration management inside VMware's VirtualCenter, and extends compliance and change management into mission-critical Oracle databases. ECM's newest features include fast and efficient patch assessment, deployment, and compliance capabilities for Unix platforms; a VMware VirtualCenter Compliance plugin; new compliance and chance monitoring capabilities; and additional platform support, including Mac OS X.

■ EMC Smarts Server Manager

EMC released its EMC Smarts Server Manager, which is a platform designed to enable customers to employ automated root-cause analysis to virtual infrastructures and data centers. The offering provides enhanced policy-based service-level control

and compliance in both virtual and physical environments and improvements in overall IT efficiency. The EMC Smarts Server Manager also features health monitoring for Microsoft Cluster Services and Veritas Cluster Servers; key application or service process unavailability notifications; and service-level control and compliance across physical, virtual, and mixed environments. EMC Smarts Server Manager pricing is based on discovery and availability management per domain and the number of devices being managed per domain.

■ Extreme Networks Summit X650

As copper-based 10 Gigabit Ethernet becomes a reality in the data center, Extreme Networks is releasing its new Summit X650 10GBASE-T switch, which the company says has been validated for interoperability with servers fitted with Intel's high-speed copper-interface adapters with RJ-45 connectors. Cloud computing, I/O virtualization, video, and other network applications can all benefit from this 10Gb combo.

Product Releases

Firetide HotPoint 4100/4200

Firetide has released the HotPoint 4100/4200 series of indoor and outdoor access points, which the company says are designed to meet the price and performance requirements of SMEs, public safety environments, and campus markets. The company simultaneously announced a 50% price cut on the HotPoint 4100/4200 access points for six months if purchased as a complete enterprise-class solution with the company's WLAN Controller. The outdoor HotPoint 4100/4200 includes a waterproof enclosure and is Power-over-Ethernet-enabled; thus, a separate power supply isn't necessary. Features of the indoor and outdoor models include fairness algorithms to prevent bandwidth hogging, per-user rate limits, tri-band capability (2.4, 4.9, or 5GHz bands), and auto-discovery and access point grouping.

GlobalSCAPE Enhanced File Transfer Server Version 6.0

GlobalSCAPE released Enhanced File Transfer Server Version 6.0 for enterprise information sharing and FTP for SME markets. Upgradeable add-ons include the ARM (Auditing and Reporting Module), HS-PCI (High-Security Payment Card Industry) Module, OpenPGP Module, Web Transfer Client, and DMZ Gateway to promote increased functionality and compliance. EFT Server also features a disaster-recovery tool and supports the Advanced Workflow Engine Module for drag-and-drop workflow that involves SNMP traps, mainframe communication, file relocation, application execution, and program adjustments.

HP Device Manager 4.0

HP launched the latest version of the HP Device Manager, a centralized thin client administration utility designed to drive down virtual client environment costs. The HP Device Manager 4.0 features quick installation (less than five minutes), a settings wizard that lets users automate changes based on specific triggers, and enhanced operating system imaging capabilities. It also features Virtual Network Computing, which enables remote workers or systems to initiate shadow requests and ensure robust security and access authentication is in place; administrative access; and remote login through an Active Directory/LDAP structure. HP Device Manager 4.0 and HP TeemTalk emulator software (included on most HP thin clients) are now available to HP thin client customers free of charge.

HP Insight Remote Support Software

HP added the HP Insight Remote Support software family to its Total Care portfolio. Insight Remote Support delivers simple and reliable remote support for small and mid-sized enterprises around the clock to ensure continuous uptime. The offering lets users tap in to continuous, automated, and secure remote event monitoring and fault detection services. The offering utilizes accurate and detailed diagnostics to deliver a near 100%-first-time fix rate.

Juniper Networks SRX3000 Series

Juniper Networks has announced the expansion of its Network SRX Series with the SRX3000 line of security and networking products. Running on JUNO Software, the SRX3000 series is a single-source network operating system that integrates routing, switching, and security services. The service is designed to provide data centers, enterprises, the public sector, and service providers with the flexibility, security, scalability, operational simplicity, and reliability required by high-performance enterprises to deploy next-generation services.

LogMeIn Rescue

LogMeIn announced the latest version of its help desk and remote support product, LogMeIn Rescue. The latest version incorporates new enterprise and collaboration capabilities that help users resolve issues more quickly. LogMeIn Rescue's new features include technician collaboration, which allows multiple support experts to work together to resolve customer issues; screen sharing, which enables technicians to share their desktops with remote users; enhanced monitoring, which allows administrators to view technicians' in-progress

support sessions; and support for Intel's vPro technology.

Netuitive SI

Netuitive announced the release of its SI product for virtual infrastructures. The latest version gives users total environmental monitoring from a single user management console. Netuitive SI's features include expanded virtualization-monitoring capabilities, support for clusters that includes failover and load balancing, a total health index that represents the correlated performance of the overall virtual infrastructure, and "three click" drill-down capability from cluster to host to VM to application.

Novell ZENworks Application Virtualization 7

Novell released Novell ZENworks Application Virtualization 7 for integration with Novell ZENworks Configuration Management. Novell ZENworks Application Virtualization 7 is designed to increase security, streamline management, and enhance deployment. Users are now able to publish virtual applications via Novell ZENworks Application Virtualization 7. This solution

supports Windows 2000/XP/Vista and can be distributed throughout desktops by way of other ZENworks management options. Novell ZENworks Application Virtualization 7 is available for $39 per user or instance license.

Oracle Enterprise Manager 10g Release5

Oracle has unveiled the Oracle Enterprise Manager 10g Release5, which delivers a broad set of tools designed to simplify the management of the full Oracle software stack. This release includes support for virtual environments, as well as a top-down approach to applications management, which helps users to decrease IT complications and boost productivity. Oracle Enterprise Manager 10g R5 supports Oracle's Applications Unlimited plan, and it includes certification with Siebel CRM 8.1.1, which is designed to increase throughput for business processes. The latest Management Pack for Oracle Communications Billing and Revenue Management is also included, as well as Oracle Real User Experience Insight Accelerators.

Oracle Sourcing On Demand

Oracle has announced Oracle Sourcing On Demand, a SaaS application designed to produce more efficient and effective strategic sourcing. Oracle Sourcing On Demand is preconfigured and hosted by Oracle personnel in order to cut time-to-value and accelerate ROI. Additionally, Oracle Sourcing On Demand is engineered to simplify sourcing events and guarantee agreements are implemented as soon as they are signed to generate more effective contracts. Cross-functional collaboration also comes with Oracle Sourcing On Demand from experts in finance, purchasing, and lines of business to optimize cost, quality, risk, and innovation.

RAD Data Communications IPmux-2L

RAD Data Communications has unveiled the IPmux-2L, which is a TDM pseudowire access gateway designed for transporting legacy services over next-generation PSNs (packet switched networks). ASIC processors have been incorporated into the IPmux-2L, and it supports standard TDM circuit emulation modes. The IPmux-2L lets the enterprise, transportation, and utility sectors take advantage of new PSNs for transporting legacy voice and data traffic, without having to replace existing equipment or compromise on service quality. The IPmux-2L can be ordered with one or two E1 ports, two Ethernet (UTP) ports, one serial port, and one Ethernet (SFP) port.

ScienceLogic EM7 G3

ScienceLogic has introduced its latest line of EM7 Meta-Appliances called EM7 G3. EM7 G3 emphasizes a shift toward resilient monitoring centers that can act independently and are engineered for the advanced management needs of dynamic infrastructure. EM7 G3 offers continuity of monitoring operations, collector resource pools for automated load balancing of data collection and work tasks, and support for IPv6 networks and dual-stack IPv4/IPv6 networks. Additionally, EM7 G3 includes an automation engine for event-based notification, workflow, and remediation, along with a core-to-edge security architecture for guarding important company data and assets.

SolarWinds Engineer's Toolset v10

SolarWinds announced the latest version of its Engineer's Toolset, which is an assortment of real-time network monitoring tools that let network administrators quickly and efficiently perform common tasks, such as network discovery, configuration management, fault monitoring, detailed performance monitoring, and NetFlow analysis. One of the offering's new features is the Workspace Studio, which is an isolated environment that lets users drag and drop to rearrange and customize the interface for a more efficient troubleshooting experience. Other features include the Real-Time Interface Monitor, SNMP Real-Time Graph, and Advanced CPU Load monitors. SolarWinds Engineer's Toolset v10 starts at $1,390.

Symantec Altiris Client Management Suite 7.0 & Altiris Server Management Suite 7.0

Symantec released the Altiris Client Management Suite 7.0 and Altiris Server Management Suite 7.0. The suites provide better visibility into IT assets, simplify day-to-day manageability, improve the productivity of end users, and help customers realize cost savings and value from their IT investments. Symantec's integrated endpoint management solutions can be used across a range of client and server systems, either physical or virtual, to ensure that valuable information resources are protected.

Both suites automate manual management tasks, ensure business productivity tools and data are working correctly, and help ensure license compliance. The suites are built on the Symantec Management Platform to drive process automation and provide modular and extensible integration across Symantec's products.

Uplogix Remote Management Operating System v4.0

Uplogix unveiled its RMOS (Remote Management Operating System) v4.0, a software platform for Uplogix appliances that automates the management and recovery of network devices. Version 4.0 features expanded support for single command-and-response actions to eliminate the requirement of custom device drivers for the control of infrastructure devices. Uplogix RMOS v4.0 allows for the integration of IT operations and security functions, such as secure remote access, local performance monitoring, policy enforcement, configuration management, fault management, and service-level management, into a single solution in order to reduce IT support costs and the risks of managing distributed IT infrastructures.

VSS Monitoring 10Gbps Network Taps

VSS Monitoring launched two 10Gbps network taps, the VSS v2.8 Distributed Filter Tap and v1.2 Distributed Filter Tap, which are designed to provide IT professionals with a large selection of high-speed traffic capture devices. These two devices capture data from any point on a network and transmit it to a central location for analysis, which allows for a comprehensive, centralized, and scalable view of large networks. Additionally, they include features of other VSS Monitoring Distributed Traffic Capture systems.

PHYSICAL INFRASTRUCTURE

Adder AdderView Pro

Adder recently announced an 8-port KVM switch with audio, the AdderView Pro. The switch delivers a full dual-link DVI-I video, high-speed USB 2.0, and audio switching. The AdderView Pro's multiplexing features allow users to simultaneously select a mixture of the attached DVI, USB, or audio inputs. The new switch is designed for industries that need high-performance video and peripheral functionality.

Black Box Network Services AlertWerks II Environmental Monitoring System

Black Box Network Services announced the AlertWerks II Environmental Monitoring System for network infrastructure protection. This system is designed to monitor airflow, security breaches, AC voltage, and motion. The ServSensor hub, available as Serv-Sensor, ServSensor Jr., ServSensor Contact, and ServSensor V4P, monitors the environment through the AlertWerks II Intelligent Sensors remote network. The ServSensor VP4 provides real-time video alerting.

Dell PowerEdge 4220 & PowerEdge 2420

Dell unveiled two rack enclosures: the Dell PowerEdge 4220 and the Power-Edge 2420 for virtual environments. These enhanced enclosures are intended to facilitate increased power and energy-efficient cooling. New features include deep rack space with 80% front-and-rear-door perforation, dual PDU (power distribution unit) options, multiple cable management choices, and a static load-bearing maximum of 2,500 pounds for the PowerEdge 4220. Overall, these releases support storage systems in data centers, remote workplaces, and large IT layouts.

Product 🐎 Releases

■ EnerSys DataSafe 16HX

DataSafe 16HX is the first 16V UPS supplemental battery with front-mounted terminals, according to EnerSys. The DataSafe 16HX takes up 20% less space, yet can augment a 750kVA UPS with up to 15 minutes of runtime. The VRLA battery needs only 44 square feet to do so, too. It comes in 550-, 800-, and 925-watts-per-cell varieties. It's scalable and can supply the same power as competing products with as few as half the connections, EnerSys says.

■ Leviton P1070 & 4500 Series PDUs

Leviton has released two series of PDUs, including horizontal and vertical rackmount models that the company says will bring increased functionality to its PDU product line. The P1070 Series consists of five vertical surge-protected PDUs. All the models are compliant with the UL 1449 Edition 2.5 standard, have a clamping voltage rating of 400 volts, and have a peak surge current rating of 18kA. Additionally, the P1070 series' models include circuit breaker protection and LEDs to indicate power, surge protection, and grounding/polarity statuses. The models are available for 120-volt input in 15- and 20-amp configurations. The 4500 Series mounts horizontally on 19-inch racks or cabinets. The models include a rocker on/off switch, front- and rear-facing receptacles, and a resettable integrated circuit breaker. The 4500 Series models are available in 15- or 20-amp configurations with 7-, 10-, or 15-foot cord lengths.

■ Raritan PX 1.3 & Dominion KX II Smart Card Reader Solution

Raritan has added new features to its Dominion PX rack PDU products via firmware to assist data centers in optimizing their operations and managing energy. Raritan says the firmware features will let companies gather more useful and accurate data from servers and other data center IT equipment. New features in the release include outlet group power, outlet current lower thresholds, and kilowatt-hour metering. Raritan has also announced it's expanding its smart card product line with the Dominion KX II Smart Card Reader Solution, which allows for card readers to be placed in locations most convenient to IT administrators, including outside a data center. During use, authorized users are authenticated by inserting a card into a KX II Smart Card/CAC Reader that's connected to a remote workstation or the Dominion KX II switch in the data center. With one card reader, authentication access to multiple target servers is possible. The KX II Smart Card Reader will be available in Q2 2009.

■ Staco Energy Products Single-Phase UPSes

Staco Energy Products announced a line of single-phase UPSes that are designed for demanding industrial applications, such as control and relay protection, assembly line operation, and process systems backup. The true double-conversion UPSes in 1, 2, and 3kVA models help protect against outages and irregularities in incoming line voltages. Each UniStar C Series rackmount UPS model includes hot-swappable batteries, an internal battery charger, and emergency shutdown and programmable receptacles. Staco also offers a tower design UniStar III Series for 1, 2, 3kVA, as well as a UniStar P Series for larger installations rated at 6, 8, and 10kVA.

SECURITY

■ Barracuda Networks Barracuda Web Application Firewall 860 & 960

Barracuda Networks announced its Barracuda Web Application Firewall 860 and 960 solutions for securing corporate Web sites and XML Web services. The Barracuda Web Application Firewall 860 and 960 are ideally suited for enterprises and large organizations looking for protection from common attacks, including SQL injections, OS command injections, XXS (cross-site scripting) attacks, and more. The Barracuda Web Application Firewall 860 supports up to 150 backend servers and 600Mbps of inbound Web traffic. The Barracuda Web Application Firewall 960 supports up to 300 backend servers and 900Mbps of inbound Web traffic. Pricing for the Barracuda Web Application Firewall 860 and 960 starts at $24,999 and $34,999, respectively.

■ Catbird VMShield 2.0 With V-Tracker

Catbird released VMShield 2.0 with V-Tracker, which is designed to enforce compliance and policy of both network and VM state, regardless of the location or movement of VMs. V-Tracker is designed to combine proven virtual machine-tracking capabilities with in-depth monitoring of suspect activity on the network itself; preserves policies across hosts, clusters, and vendor platforms; and automatically blocks out-of-policy or compromised VMs from breaching data center security. Features include real-time intelligent state and VM activity monitoring, intelligent packet filtering and deep packet inspection, and automatic quarantine and virtual infrastructure controls.

■ Comodo Disk Encryption

Comodo Security Solutions has released its Comodo Disk Encryption software for protecting stolen laptops. Through the use of security algorithms, the software encrypts any hard drive partition or virtual partitions without hampering the laptop's performance or usage. In addition to a pasword-

authentication function that allows users to set passwords as access-authentication keys for encrypting required drives, the software lets users and administrators choose to require a USB flash drive in order to access an encrypted drive. Comodo says combining password and USB authentication into a two-factor authentication product results in the most secure disk encryption the company offers.

■ Cyberoam On-Appliance SSL VPN

Cyberoam has announced on-appliance SSL VPN for its Identity-Aware UTM appliances. The on-appliance VPN capability is agnostic about the location, platform, and device of the user. It's ideal for business travelers, partners, and customers who need secure remote access to the company network. The new SSL offering is also simpler to implement and troubleshoot than client-based IPSec solutions.

■ Digital Info Security DISC Secure Vault Manager

Digital Info Security released the hosted DISC Secure Vault Manager. Launched as two enhanced versions, the enterprise version gives visibility to companies accessing employee information, and the consumer/small enterprise version prevents password and device loss. DISC Secure Vault uses ENCRYPTX DeviceDefender, SecurFlash, SecurDataStor, and SecurWrap to enable password management. Features include remote administration for user data management, email compliance, remote data backup, and added security. The solution complies with HIPAA, Sarbox, and GLBA laws.

■ EMC RSA enVision 4.0

EMC introduced the latest version of its RSA enVision three-in-one log management so-lution for SIEM (security information and event management). The RSA enVision 4.0 platform addresses the compliance, security operations, and risk mitigation aspects of security policies and provides automated collection, analysis, alerting, auditing, reporting, and storage of IT log data to help users optimize IT and network operations. RSA enVision now supports the ability to assign risk values to certain threats and fine-tune the effectiveness of security policies, processes, and resources.

■ Fortinet FortiOS 4.0

New firmware for Fortinet's FortiGate security appliances upgrades them with the new FortiOS 4.0 operating system. FortiOS 4.0 incorporates new technologies, previously available only as separate offerings, that extend protection to a broader range of network devices and activities. It includes SSL traffic inspection, WAN optimization, protection against data leakage, and application control. All features interoperate with each other to enable companies to embrace cloud computing and SaaS initiatives with confidence in their security.

■ Hewlett-Packard Access Control Smartcard Solution, Automated Data Removal Solutions, Government Case Processing Accelerator Solution, Voluntary Product Accessibility Template & EVA6400/8400

At the 2009 FOSE Conference, HP announced several new products. The HP Access Control Smartcard Solution for the U.S. government allows stronger security options in regard to imaging and printing network authentication for government employees. The HP Automated Data Removal Solution is designed to streamline the redaction process of documents via HP multifunction printers and scanners. Additionally, HP announced the Government Case Processing Accelerator Solution, which controls the

routing of confidential data into business applications, and the Voluntary Product Accessibility Template, which helps federal agencies use HP Exstream in their compliance with Section 508 of the Rehabilitation Act of 1973. New additions to HP's storage virtualization portfolio include the HP StorageWorks Enterprise Virtual Array 6400 and 8400, along with the SAN Virtualization Services Platform 2.1.

■ IBM Proventia Endpoint Secure Control

IBM has announced Proventia ESC (Endpoint Secure Control), a security tool designed to enable enterprises to escape from the constraints of vendor lock-in and enhance endpoint security, compliance, and operations at a lower cost. The IBM Proventia ESC combines a number of security endpoint management areas into one product, including IPS (intrusion prevention systems); firewall and network access control; data protection such as device control, data-loss prevention, and endpoint encryption; security configuration; compliance management; and IT security operations such as security patch management and deployment/removal of security tools.

■ Juniper Networks Adaptive Threat Management Solutions

Juniper Networks announced Adaptive Threat Management Solutions, an open security infrastructure designed to provide realtime threat defense with network-wide visibility and control at scale to reduce risk and increase productivity, all while significantly reducing TCO (total cost of ownership). The product is based on a flexible pay-as-you-grow deployment model designed to simultaneously reduce risk, lower TCO, and increase productivity. Products in the line include the SRX3000 Series Services Gateways, a new release of Juniper Networks' NAC (network access control) solution, and UAC (Unified Access Control) 3.0.

■ Pervasive Software Pervasive DataMatcher

Pervasive Software has announced Pervasive DataMatcher. This data-matching solution is designed to be highly accurate while helping enterprises uncover fraud, money laundering, and corruption and allows for threat detection and law enforcement applications, compliance monitoring, and MDM (master data management). Pervasive DataMatcher is engineered to mount seamlessly on large, complex datasets with the ability to correspond on any or all fields in a dataset, including fuzzy matching. Pervasive DataMatcher's foundation is the Pervasive DataRush processing engine, which allows the solution to get through large amounts of data swiftly and precisely on commodity multicore hardware.

■ Sunbelt Software MX-Virtualization

Sunbelt Software has unveiled the enhancement for the VIPRE Antivirus + Antispyware line: MX-Virtualization. MX-V integration will continue to help protect users from various forms of malware and

prevent unknown threats from attacking. Using a compact, virtualized Windows environment, MX-V analyzes malware signatures and other functionalities. This solution is available for both consumer and enterprise versions and includes enhanced signature and heuristic detections.

■ Symark PowerBroker 5.2

Symark released PowerBroker 5.2, which it claims is the industry's most comprehensive

Product ✍ Releases

product for authorization and access control in a heterogeneous Unix/Linux IT environment. Through integration of the SafeNet Luna SA hardware security module, the software offers the first privileged access control and accountability product using FIPS 140-2 Security Level 2 appliance-based encryption services, Symark says, thus providing compliance with most strict key storage requirements and standards. The software also includes support for Mac OS X 10.4 and 10.5 operating systems. By helping security managers more easily grant selective admin privileges without giving up a root password or control of applications/commands or directories/files, PowerBroker 5.2 helps companies comply with PCI DSS, Sarbox, HIPAA, and other regulations.

SERVERS

■ Sun Microsystems CMT x64

Sun Microsystems announced that some of its CMT x64 rack and blade systems now include SSD technology. The company says its Solaris ZFS is the only file system optimized for flash. Pricing for SSD products starts at $1,199, with the Sun Fire X6250 Blade ($3,240) representing the ground floor for an integrated server system. Sun Microsystems also announced the Sun Flash Analyzer, a download that identifies applications with heavy I/O demands and recommends ways to speed them up in the company's SSD servers.

■ Supermicro 2U Twin Squared Servers

Supermicro has unveiled its latest line of 2U Twin Squared servers for existing and future Supermicro twin boards. These server solutions include hot-swappable hard drives, PSUs, and installation computing nodes. Redundant power is an available option, as well as RAID 5 data protection. Each platform can run on 1.5-volt and 1.35-volt DDR3 memory (144GB in 18 DIMM slots). A universal I/O interface allows users to select almost any UIO card format,

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such as SAS 2.0, 10Gb Ethernet, FC, or InfiniBand. The 2U Twin Squared servers support IPMI 2.0 with KVM over LAN.

STORAGE

■ Atempo ADAM 2.2

Atempo has announced version 2.2 of Atempo Digital Archive for Messaging, or ADAM. The enterprise email archive software, which Atempo says also scales well to smaller organizations, now supports Mac systems and applications. Also new is integration with the company's ADA (Atempo Digital Archive) file archive utility. ADAM supports Microsoft Exchange, Lotus Notes, Novell Groupwise, and other IMAP products, as well as a host of messaging architectures.

■ Barracuda Networks Barracuda Message Archiver 150

Barracuda Networks unveiled the Barracuda Message Archiver 150, which is designed for SMEs. As a cost-effective email and IM archiving solution, the Barracuda Message Archiver 150 offers Exchange stubbing to help IT administrators save server email storage by moving attachments from Microsoft Exchange to the Archiver. After removing the attachments, Exchange stubbing adds hyperlinks to the attachments stored on the Barracuda Message Archiver. Archiver also includes Outlook Add-in for retrieving messages without disrupting the

end user. The Barracuda Message Archiver 150 starts at $1,999.

■ Continuity RecoverGuard 4.0

Continuity announced version 4.0 of its RecoverGuard solution. The new version's features include high-availability gap detection and reporting and a comprehensive availability advisor, which detects configuration drifts affecting disaster-recovery/high-availability servers. Features also include root-cause analysis, which can determine which infrastructure changes led to the problem, and deployment analysis

◠ CONTINUITY SOFTWARE

that finds and reports on IT assets that require protection.

■ CRU-DataPort Data Security & Storage Products

CRU-DataPort announced five data security and storage products, including hardware-based encryption, write-blocked forensic tools, and a portable RAID storage enclosure. The DataPort 10 Secure protects sensitive data on a hard drive; the Portable DataRAID PDR610 makes up to 9TB of data transportable; the Forensic RTX is a portable storage enclosure that allows IT staff to examine 3.5-inch IDE or SATA hard drives; the RedPort SAS PCI card adds write-blocked ports to a Windows or

CRU DataPort®

Linux computer while protecting the contents of an attached SAS/SATA device; and the RTX400-QR is a low-cost, portable storage enclosure that features a high-speed quad interface, four TrayFree bays, and RAID 5 for data protection.

■ Digital Reef Data Management Solution

Digital Reef announced a new approach to discovering and managing unstructured and semistructured data. The Digital Reef solution helps companies address e-discovery, data risk migration, knowledge reuse, and strategic storage initiatives, issues that stem from a lack of control over unstructured data. The solution is designed to tackle large stores of unstructured data without manual effort or data center disruption. With the new solution, data centers will be able to locate specific kinds of data, including sensitive data such as Social Security and credit card numbers; identify regulated data for compliance; and pinpoint relevant documents for pending legal action.

■ Enhance Technology StorPack S23T/S34T/S35T Series

Enhance Technology has released the StorPack S23T/S34T/S35T Series of multidrive backplane storage enclosures. Enhance Technology says a black and silver TeraStor Series T-shaped tray design uses the embedded light pipes to the backplane for LED signals, while a rear cooling fan adds increased performance. The StorPack Series includes multiple removable drive trays, and black aluminum with an ultra-quiet cooling fan module and front-to-back vent airflow helps create the best heat dissipation required for SAS and high-capacity SATA drives. The back-

plane has an individual keylock for each hard drive, and drives are designed for removal or to be hot swapped easily. The OS-transparent StorPack T Series is designed for JBOD or RAID applications; data protection or disk-to-disk backup; SOHO or SME environments; and digital audio recording, video editing, security surveillance, and industrial embedded computing purposes.

■ Isilon Systems S-Series, NL-Series & X-Series NAS Solutions

Isilon Systems announced two product series, as well as an addition to its X-Series of NAS products. All the products are part of Isilon's scale-out NAS solutions, which are designed to enable customers to accelerate the productivity of mission-critical applications, workflows, and processes through an efficient, easy-to-manage storage infrastructure that reduces capital and operational expenditures while seamlessly scaling in lockstep with business growth. The products leverage Isilon's OneFS operating system software and are designed to help expand the applicability of its leading-edge scale-out NAS solutions within the enterprise and data-intensive vertical markets, enabling enterprises to speed time-to-market, eliminate disparate systems, and reduce operational costs.

■ Sans Digital AccuRAID AR212SX, AR316SX; SFF-8088

The AccuRAID AR212SX and AR316SX rackmount SAS modules from Sans Digital are high-value, expandable storage systems for surveillance, DVR, and other capacity-intensive applications. Both support SATA I/II drives and RAID 6, and both can use the company's SFF-8088 1-to-4 mini-SAS cable to attach to a host with a compatible adapter. The AR212SX is a 2U, 12-bay unit that can ultimately scale to 144TB with additional

hardware, whereas the 3U, 16-bay AR316SX's scalability ceiling is 192TB.

■ Spectra Logic Spectra T680

The Spectra T680 provides a petabyte of storage in a single rack. This LTO-4 library can store up to 1.08PB of compressed data with up to 680 tapes and 12 full-height tape drives. The power-saving T680 comes with Spectra's BlueScale management layer, plus the ability to "TranScale" to a 10,000-tape Spectra T950. Pricing for a four-drive T680 with recommended accoutrements starts at $67,780.

■ Synology Disk Station Manager 2.1 Software & 09-Series Disk Station Models

Synology unveiled Disk Station Manager 2.1 and its 09-series Disk Station models that increase Disk Station storage capacity up to 10 drives. The Disk Station models feature 2.5-inch hard drive support with noise reduction for quiet operation. The Disk Station Manager 2.1 software is built on AJAX technology, and it adds mail server capabilities thanks to the installment of the Mail Station add-on, an enhanced Synology Surveillance Station, storage management, user management, and privilege management. Version 2.1 also adds support for Portuguese (South

American), Portuguese (European), Turkish, and Hungarian. The Disk Station Manager 2.1 will be shipped with all 09-series Disk Station models, and free upgrades will be offered on Synology's Web site for most models.

■ Viking Modular Solutions SATA Cube3

Memory and flash module designer and maker Viking Modular Solutions released the SATA Cube3, an embedded SSD the company designed as an ultra-small-form-factor, industrial-grade SATA SSD in capacities ranging from 4 to 256GB. Viking says the Cube3 is ideal for OEMs requiring nonvolatile solid-state storage and SATA performance in an ultra-small form factor. The Cube3 is designed for conditions where a ruggedized drive is suitable. Sustained read and write speeds boast 110MBps and 79MBps, respectively. Size-wise, the Cube3 is 86% smaller than a 2.5-inch SSD/HDD and is available as a BGA device or with a MicroSATA connector. The Cube3's footprint is 30 x 32mm.

■ WD 8TB ShareSpace Network Storage System

Western Digital has announced that its WD ShareSpace network storage systems are available in 8TB capacities with up to 30% faster transfer speeds for large media files and DLNA media-streaming abilities. WD says it incorporated its 2TB WD Caviar Green drive into the ShareSpace's four-bay design. The ShareSpace includes Anywhere Backup software for automatic and continuous data protection. Additionally, WD has added a DLNA-certified media server to the ShareSpace to stream audio, photos, and video to other DLNA-certified devices. The 8TB ShareSpace is available for $1,699.99. ShareSpace models are also available in 2TB and 4TB versions.

■ Xenos DSR

The Xenos DSR is a document storage reduction solution for enterprise content management. Xenos DSR reduces operational costs by decreasing the amount of stor-

◇ xenos

age needed to archive the documents sent out to customers by more than 90%. Xenos DSR separates unique transactional content and common document resources and stores only a single instance. It then embeds pointers to the common resources in documents that contain the unique transactional data.
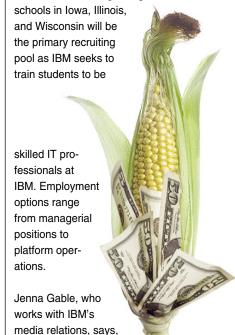
IBM Invests In The Midwest

IBM is planning a new technology service delivery center to be built in Dubuque, Iowa. The center will employ 1,300 workers by 2010 and will utilize local-area organizations to facilitate the renovation of the Roshek Building in downtown Dubuque into a more eco-friendly location.

As IBM makes this transition, it plans to hire employees this spring, starting with a few hundred people. On the local front, IBM is joining ranks with educational institutions to further the technological agenda. Area schools in Iowa, Illinois, and Wisconsin will be the primary recruiting pool as IBM seeks to train students to be skilled IT professionals at IBM. Employment options range from managerial positions to platform operations.

Jenna Gable, who works with IBM's media relations, says, "Many of these jobs will be in the areas of systems and storage management across multiple hardware and software platforms, including both IBM and non-IBM systems."

Future Of IT Expansion?

Many are wondering if the type of construction IBM is pursuing is evidence of a more optimistic future for IT expansion. Although it may seem that way, projects such as Microsoft's Chicago data center are still in limbo, according to industry analysts. Darin Stahl, research lead at Info-Tech Research Group, says, "This is not a sign of a more optimistic future. I don't think it's a sign of anything other than IBM is executing a business model."

Although data centers are multiplying at a normal pace, numerous businesses have reached a point of limitation regarding what they can do with their facilities in relation to power and space, Stahl says. If outsourcing is the result, then the question is, "How does the current economic state affect outsourcing in general?"

"What is happening with a number of our enterprises is that they're beginning to contract some things. If I'm a small [or] mid-sized company and I'm using the outsource provider, I'm beginning to question the level of spending," says Stahl. "I might be pulling stuff back or reducing my footprint somewhat. Or, I may be holding back. What that means is that outsourcers in general are beginning to feel the pressure just like everybody else, so their revenue is getting stagnant."

Because data center building and outsourcing aren't the final answers, enterprises will have to wait for signs of improvement. "Nobody believes this is going to be a multiyear [crisis]," Stahl says. "There will be some return to normalcy begin to happen from our customer standpoint across multiple industries."

by Joanna Safford

Serpentine Cabling Solutions

Snake Tray Offers Unique Hand-Bendable Cable Management Products

by Sandra Kay Miller

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CABLES ARE AS ubiquitous as servers in the data center and similarly need to be intelligently managed. Just as the equipment they attach to is neatly and efficiently controlled through racks, cables present a need for their own dedicated infrastructure—cable trays.

As data centers have significantly increased in size over the past 20 years, so has the amount of cables running throughout the facility. "When we first started, data centers were much smaller. Now they routinely exceed 100,000 square feet. Going from models 10 times larger, along with the explosion of Web-based applications, have greatly expanded cable management needs," says Roger Jette, founder and president of Snake

Snake Tray's cable management trays can be bent by hand.

The Mega Snake cable management system is intended for overhead installation.

Tray (800/308-6788; www.snaketray.com), a manufacturer of cable management and power distribution solutions for data centers.

One-Of-A-Kind Cable Management

Although there are numerous styles of cable trays available—ladders, solid, trough, channel, single rail, and wire mesh, to name a few—Snake Tray offers a unique feature not found in any other manufacturer's product. "Snake Tray is the world's first and only hand-bendable metal cable tray. To this point, there still are no others," says Jette.

Jette attributes the flexibility of Snake Tray to the overall design, not the materials. Manufactured out of steel, "Snake Tray is designed specifically for bendability and balanced for the strength to carry cable."

Snake Tray was formed 13 years ago by Jette, who has a long history of custom fabrication that started out in the boating industry. "Every boat is different and needs a custom solution. I was always custom designing and fabricating whatever it was I needed to install or fix on a boat." When Jette took on a job as

a manufacturer's sales rep, he became more adept at designing solutions to solve customers' problems. "One day, I saw an opportunity to solve some cable management issues. I envisioned what a hand-bendable cable management system would look like and then went back to my cellar and designed and prototyped it." Snake Tray was launched on those first few designs, and now the company holds more than two dozen design patents on its distinctive products.

In addition to being able to be shaped by hand, Snake Tray also has other advantages over comparable products. "All of the Snake Tray products from end to end are completely nestable. They take up very little space, [and] they transport in bulk easily—in some cases with a ratio of 10 to one," says Jette. Also, thanks to the reduced shipping footprint, it takes fewer delivery vehicles to transport a Snake Tray system.

Standards & Certifications

Saving money and energy in transportation isn't Snake Tray's only "green" factor. Made from recycled steel, the company's cable management system can also contribute to attaining LEED certification, which is rated according to environmentally sustainable construction standards created by the U.S. Green Building Council.

LEED standards aren't the only certifications to which Snake Tray adheres. All of Snake Tray's products, including its power distribution equipment, meet standards set forth by the American National Standards Institute, the National Electrical Code, the Electronic Industries Alliance, and ASTM International.

Gerard Winstanley, a technical program manager with the National Electrical Manufacturers Association's Low-Voltage Distribution Equipment section, advocates the importance of choosing a cable management system that meets globally accepted standards. "Standards mainly address safety issues, but they also create a benchmark that lets you know that these products have been evaluated, tested, and are up for the task for which you intend to use them."

Similarly, choosing a product that has met industry-wide standards ensures that the product integrates safely with surrounding infrastructure. "When creating standards, we go through an entire installation process," Winstanley says. "That means the cable tray

coordinates with the types of cables being carried, as well as the cable ties that hold it together. We test how the system works within a building, such as going through physical firewalls or bulkheads, so it operates continuously and safely."

According to Winstanley, not all cable trays are created equal, and specifications help determine what type of products should be used. "You've got a number of kinds of cable trays, primarily fiberglass or metal. You need to take into consideration the strength, size, and weight of the cables that are being carried."

It's not just the physical growth in the industry that has driven the need for cable management. According to Jette, building code issues have also accelerated the need for cable management trays. "Many codes require that cable be attached to the building's primary infrastructure instead of laying on the ceiling grid like in the old days."

Affordable Quality

Jette points out that in addition to satisfying physical cable management needs, his company's products can also offer significant savings over traditional cable management systems.

Some cable tray solutions offer the actual product at little or no cost, charging only for installation. "In cases like that, you can get a cable tray product from another producer for free, yet our system would still be less expensive to purchase because the labor differential would eat up all the advantage of a low-cost, non-bendable generic cable tray," Jette says.

Although Jette's company has grown into a multimillion-dollar venture with an international customer base reaching as far as Australia, Europe, and the Middle East, everything in the catalog, including Snake Tray's products that distribute power under raised floors (Snake Bus), provide air management under raised floors (Snake Air), and integrate power and data (Snake Connect), is manufactured in the United States. "We can make everything in the U.S. and not need to look overseas because we are a highly integrated company. The manufacturing and automation that helps us build Snake Tray allows us to deliver a low-cost product made in the United States," says Jette.

Featured Product

Keeping Watch

IT WatchDogs' Flock Of Monitoring Devices Keep An Eye On Your Environment

by Holly Dolezalek

• • •
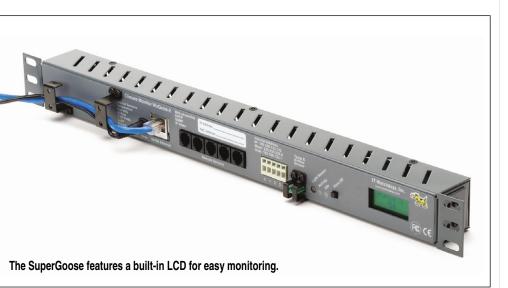
THE DATA CENTER or server room houses an organization's memory and nervous system, and there are many threats to its integrity—cooling failures, water leaks, sustained and too-high levels of noise, or unauthorized entry, to name a few. What's more, specific conditions in other types of equipment rooms can threaten data in unpredictable ways. It all makes an extra set of digital eyes and ears, which keep track of conditions when humans aren't around, a desirable alternative.

The most common condition that IT managers want to monitor is temperature. Companies spend a lot of money to keep

The SuperGoose features a built-in LCD for easy monitoring.

their mission-critical IT equipment, such as servers and switches, from overheating. That's because although the cost of cooling is a large line item, it's nothing compared to having to replace those servers or switches.

Rather than assume that everything's fine in the data center, companies install environmental monitoring systems to make sure that the temperature remains within a healthy range for equipment to keep operating. That was the driving force behind IT WatchDogs' WeatherGoose line of environmental monitors.

Monitoring For Change

For companies that want to decrease their electricity usage, environmental monitoring can be not only reactive but proactive. Monitoring conditions in the server room or data center can help them to gather the data they need to make changes for the better.

"The fact is, you may have to involve experts in order to redesign your data center or server room in order to create savings," says Darin Stahl, research lead at Info-Tech. "Especially if you're tinkering with airflow or thermal dynamics, you may need expert help. But having a baseline of information about the airflow or temperature or humidity will lower the cost and expedite the process. Consultants are expensive, so it's always better to focus their efforts with specific data."

WeatherGoose & More

IT WatchDogs (512/257-1462; www.itwatchdogs.com) launched its WeatherGoose line of environmental monitors in 2004 with the release of the WeatherGoose, a monitor with an internal Web server and Ethernet port so that sensor data can be accessed anywhere with an Internet connection. It has built-in sensors for temperature, light, airflow, sound, and humidity and includes three analog ports to add other sensors for a full capacity of 16. Other sensors might monitor smoke, door access, or other conditions.

The WeatherGoose ($399) installs in a 19-inch 1U rackmount panel. A crossover cable connects the monitor to a PC on the local network through an RJ-45 port, and users access a simple Web interface to assign the monitor an IP address and set thresholds for sensors and alarm types.

Since 2004, IT WatchDogs has released several more models in the same line. The SuperGoose ($499) came out in 2005. It has the same features as the WeatherGoose, but it also has an LCD screen, audio alarm, and built-in rack plate.

For in-cabinet installations with limited space, the MiniGoose ($199), released in 2006, has the same features as the WeatherGoose but is housed in a small metal box. Like the WeatherGoose, it supports up to 16 sensors, but it only has one internal sensor for temperature. The MiniGoose 2 has 16 external sensor jacks and three input/output ports.

The latest in this line, the MicroGoose ($199), is for the simplest monitoring tasks; it has temperature and humidity sensors built in, as well as Power over Ethernet.

The Market For Monitors

There are other lines of environmental monitors on the market, but Pepe Ramos, sales and operations manager for IT WatchDogs, says that the WeatherGoose line has two advantages over others: price and support. "Our monitors' price points are less than those of competitors that are doing the same thing, and some [competitors'] offerings] are even twice the price," says Ramos. "But maybe even more importantly, our tech support people are the same programmers and engineers who designed our monitors in the first place. When customers call to get support, they're not talking to

some guy in India who's reading from a script; they're talking to the people who maintain and write the code."

Ramos also touts the monitors' track record of reliability. "Over the years, we've probably had over 20,000 devices deployed, and we've never had a report of one of them failing to report a problem when there was a problem," he says. "It's only been when the device was set up wrongly or when the alarms went off but nobody paid attention."

Ramos suggests that there are many more uses for environmental monitors than the usual temperature/humidity/power trinity. For example, one customer is a researcher

at Emory University in Atlanta who is studying the mating behavior of certain animals. She uses a monitor with a light sensor because the lights in the room where the animals are caged were frequently turned off, which interfered with her research. Another client, a national billboard company, uses a MiniGoose with a sensor that monitors city power and another that alerts the company when a small access door on its billboards is opened.

There are many uses for WeatherGoose monitors, Ramos says, but the main one is consistent. "Whatever the condition you're monitoring, if it could threaten your data or operations, a WeatherGoose monitor is an inexpensive insurance policy," he says. P

EU's Competition Commission Ends Microsoft Oversight

The European Union officially ended its oversight of Microsoft this month. In a statement issued by the EU's Competition Commission, it said, "In light of changes in Microsoft's behavior, the increased opportunity for third parties to exercise their rights directly before national courts, and experience gained since the adoption of the 2004 decision, the commission no longer requires a full-time monitoring trustee to assess Microsoft's compliance."

The oversight began as a result of the European Union's 2004 ruling that Microsoft was guilty of using its dominant market position to unfairly stifle competition by bundling its Windows Media Player with its operating systems and by leveraging its operating system to establish a greater share of the server market. The court also levied a fine against Microsoft of several hundred million dollars.

Microsoft appealed the fine but lost in court. Subsequently, in February 2008, the company was penalized another $1.3 billion for not complying with the initial ruling. In total, Microsoft has been fined about $2.4 billion by the EU.

A British computer scientist, Neil Barrett, acted as the monitor to ensure Microsoft's compliance with the ruling. He has been excused from his position as monitor, which he held since 2005.

"Given that the original set of interoperability information has already been documented by Microsoft . . . the nature of the technical assistance that the commission requires is now of a more ad hoc character," the commission said.

Microsoft Still Faces IE Lawsuit

Despite the lifting of EU oversight in this matter, Microsoft still faces another antitrust lawsuit concerning its Internet Explorer Web browser. The issue in this case again stems from the fact that Microsoft bundles Internet Explorer with its operating systems. The European Commission put the software maker on notice in January.

Internet Explorer claims the vast majority of the Web browser market share—more than two thirds. The suit was brought by Opera, and both Google, maker of the Chrome browser, and Mozilla, which makes the Firefox browser, have been granted third-party status. Essentially, third-party status lets the two companies view confidential documents pertaining to the case and also voice objections.

by Seth Colaner

Expand Your Bandwidth

Expand Networks WAN Accelerator Solves Real Estate Company's Woes

by Sue Hildreth

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When an organization hits the ceiling of its network bandwidth, what are the alternatives? One health industry real estate company turned to the Expand Networks WAN Accelerator to free up bandwidth.

What do you do when your bandwidth needs are nearly three times your actual available bandwidth? One obvious option is to upgrade your service contract. That will guarantee more bandwidth, but it will also ensure your network bills are considerably higher.

Major Bandwidth Problems

At Healthcare Realty Trust, a Tennessee-based real estate company that serves the healthcare industry (www.healthcarerealty .com), bandwidth had become a major problem. Healthcare Realty's 35 management offices, scattered from D.C. to Hawaii, all rely on the network connection to the central data center in Nashville to access their Citrix-based applications. Any disruption to the network means that employees can't readily access their work applications. Unfortunately, disruptions were occurring rather frequently, often caused by large print jobs or video files that ate up the available bandwidth. Then, the latency in the response time could be severe.

"People would be typing and seeing the characters appear 10 seconds later," says Robert Dillard, network operations manager for the company. A really large print job, or several at once, could bring the network to a crawl. So could video downloads or streaming video, both of which were becoming more common.

Preventing employees from sending large files to network printers was not an option. Because Healthcare Realty handles complicated real estate deals, employees often have to send large legal documents over the network to a printer.

The IT department wanted a way to optimize the Citrix traffic so that print jobs and video were not allowed to fill the entire pipe and so more critical applications would get priority.

At the same time, says Dillard, the company also needed a way to diagnose problems at branch offices from the central data center. "We could log in and say, 'Yes, your utilization counters are running through the roof, what are you doing?' But we couldn't tell anything beyond that," says Dillard.

Because most of the traffic was from Citrix applications, the traffic was largely Citrix ICA or Microsoft Terminal Services RDP traffic. However, not all of the network optimization and management solutions available did anything for RDP or ICA traffic, as Dillard found out when testing a couple of potential solutions.

Evaluation & Rollout

After reading IT forums on the Internet, Dillard came across Expand Networks' WAN Accelerator (www.expandnetworks .com), a device that compresses and accelerates network traffic and provides QoS (qual-

EXPAND networks

ity of service) settings to allow different types of traffic to get priority over others.

The WAN Accelerator is designed to improve the response time and performance of application traffic such as Citrix, Terminal Services, VDI, and VoIP. It provides automatic Layer 7 application discovery and QoS prioritization, meaning it can prioritize traffic based on the specific URL that is being accessed, so business-critical Web applications can

be given higher priority and bandwidth than nonessential traffic. Additionally, it performs acceleration for TCP, Citrix/ ICA, RDP, VDI, HTTP, FTP, DNS, and Telnet protocols.

Dillard first conducted an evaluation of the WAN Accelerator for 30 days and then began a production rollout of the boxes in July 2008. Healthcare Realty currently has the accelerators at 10 sites and will continue to roll them out to the other sites at a rate of about three a month. That rollout speed is determined more by the budget and by the fact that Dillard is the only IT staffer handling several areas of IT, including the LAN and WAN. The boxes themselves are quick to deploy, says Dillard, taking about eight hours each to configure for a remote site. Once he has shipped the box to the branch office, he walks one of the site's nontechnical employees, usually a property manager, through the setup of the Accelerator, which typically takes no more than about 10 minutes.

Even the offices that don't yet have a box onsite have been able to benefit from the addition of the Expand QoS features to the management of the network traffic. "We can't accelerate or compress traffic at the sites we don't have the boxes deployed at, but we can still set QoS rules for those sites and prioritize the Web traffic. So, for instance, the print traffic can be configured to take up no more than 25% of the pipe if other traffic is contending for bandwidth, or let it take the full

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Keeping Track Of Email

Sonasoft Helps Napa County School System Stay On Top Of Email Archival & Backups

by Robyn Weisman

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The Napa County Office of Education, or NCOE, had been looking for an effective solution for archiving email for some time. However, unlike medical and financial industries, the NCOE does not have specific regulations and rules on archiving email.

"There is no agency that sets guidelines for us to follow, so we have to do our best to archive email and follow everyone else's rules because we don't know what we'll find in a court situation," says Brian Dake, director of information technologies at the NCOE (www.ncoe.k12.ca.us). Although Dake says that later this year the NCOE may get some substantive guidelines about how long emails need to be archived and how they are to be accessed, right now, these issues are up to individual interpretation.

Dake says cases against the NCOE have taken place where plaintiffs were awarded on whether the NCOE had the appropriate emails and then archived and presented them correctly in court. Because of the risk of incurring punitive damages, not to mention e-discovery and court requests, the NCOE needed a concise system that records all incoming and outgoing email, provides easy retrieval for e-discovery purposes, and ultimately limits liability.

Although the NCOE researched other solutions, Dake says his office finally chose two solutions from Sonasoft (www.sona soft.com): SonaSafe for Email Archiving as its email archiving solution and Sona-Safe for Exchange Server as the backup and failover solution for its Microsoft Exchange server.

Performance At The Right Price

Sonasoft offered the NCOE the best price plan of the available solutions, an important consideration given that taxpayer money funded its purchase. But price alone would

Sonasoft®

not have been a sufficient reason to choose a solution. "They still have to be good products [that] do the job. We can't go to court and say, 'Well, your honor, we couldn't really afford good software for this request,' so you have to have good, reliable, affordable software," Dake says, and Sonasoft did just that.

SonaSafe provides the NCOE with an all-in-one solution for backup, high availability, disaster recovery, and automatic

failover email backup and archival needs. Moreover, SonaSafe just works, according to Dake. "It just functions. That's the best thing I can say," Dake says. "That's important being a small shop. We don't have time to tinker with things. We go from one issue to the next, and it's just a lot to take care of, so having a product that works is just incredible."

SonaSafe's automation capabilities play a huge role in its ease of use. Rather than just performing a daily backup, SonaSafe will take off Exchange's log hourly so that if the NCOE's Exchange server were to crash, its backup would remain current. In addition, SonaSafe provides total capture and archival of users' complete Outlook mailboxes, including messages, calendars, events, and tasks. Sonasoft's solution then makes the archived file easy to search and access. Dake says that he has been able to access mailboxes from employees who left the NCOE back in 2002 using SonaSafe's email archiving solution. "It's been really helpful to archive and move those [mailboxes] off the system so they're not taking up space in our Exchange databases," says Dake.

Dake says that Sonasoft's tech support staff has helped the NCOE leverage SonaSafe's features. In one case, the NCOE's new director of finance needed an exact replica of his predecessor's mailbox because he needed access to calendar events, along with old correspondence. Sonasoft's tech support showed Dake tricks to create this replica using Sona-Safe. "That solved a huge problem for me because the mailbox was something like 8GB in size," says Dake.

Responsive Problem-Solving

According to Dake, Sonasoft is quick to respond with creative solutions to user issues. "You normally don't find this kind of help. At least I haven't, and I've been doing [IT] for 20 years," Dake says. Dake is especially impressed by the ways in which Sonasoft encourages experimentation and is receptive to customer input when developing new features.

For example, the NCOE needed multi-domain support. Although the NCOE has very few users on its ancillary domains, they do exist and have mailboxes that need to find a way into the NCOE's Exchange archives. According to Dake, this type of support wasn't available even in many of the more expensive competing products that the NCOE considered. "Sonasoft has implemented multidomain support in a slick and painless way," says Dake. "Again, it's one of those things that just works."

100% if no other application needs bandwidth," he says.

Significant Benefits

For those sites that do have the boxes, the benefits have been fairly significant. Besides the QoS capabilities, the sites with boxes benefit from acceleration and compression of the data flowing in and out of their sites. On average, the compression has been running at 63%, meaning that 63% less data is moving across the WAN. The acceleration has averaged 106% overall, with much higher levels of acceleration coming during heavy work hours. During peak times, the Expand boxes provide acceleration ranging from 400% to as high as 1,500%.

The remote boxes can also act as Web proxies and caching devices, he notes, so remote content that doesn't change frequently can be stored locally, reducing the traffic across the network. "The next time someone goes out looking for that same data, he'll hit the cache first. We're getting a 14% hit rate and a 7% reduction in WAN traffic just from that Web proxy," he says.

Given that the Accelerators have improved application performance for Citrix applications by 800 to 900% and boosted RDP applications by 1,000%, according to Dillard, the devices are proving to be worth their price tags of $2,495 to $12,940, depending on the model.

"We would have had to double or triple the bandwidth," says Dillard. "For a smaller site, that could increase the costs by an extra $1,200 per site, and for the larger ones, up to $2,000-plus per site per month."

In fact, the addition of the WAN Accelerators has allowed Healthcare Realty to reduce its network costs. The company is scaling back its bandwidth in many of the offices, moving down from a 768Kbps to a 512Kbps pipe in some offices and from a T1 line to a 768Kbps line in one regional office.

It also has provided the monitoring and reporting features that Dillard lacked. "I can sit down, look at the data that is being patched in from the Expand box into a Netflow utility, and see exactly what traffic was generated from their site, what machine was generating that traffic, and what they were doing. We can then take action to improve their system performance and decrease the load on their pipe based on that data," says Dillard. "Since our goal was to watch and manage the Citrix and VDI traffic, with the goal of improving the end-user experience, this has been a no-brainer for us." P

Expand Networks WAN Accelerator

A standards-based multiservice platform that delivers a complete application acceleration solution. It accelerates real-time and time-sensitive applications for Citrix and Microsoft Terminal Services environments.

"[Without the WAN Accelerator] we would have had to double or triple the bandwidth," says Robert Dillard, network operations manager at Healthcare Realty Trust. "For a smaller site, that could increase the costs by an extra $1,200 per site, and for the larger ones, up to $2,000-plus per site per month."

(888) 892-1250
www.expandnetworks.com

Additionally, Dake says implementing SonaSafe went well. "I wish I were an Exchange expert, but I can't afford to hire a position of Exchange expert or database administrator," Dake says. As such, he appreciated Sonasoft's ability to integrate the archiving process seamlessly into a complex Exchange environment.

Noteworthy Tech Support

Dake calls Sonasoft's tech support incredible. "I've never waited more than just a few moments, and I always get the level of expertise I need. Often with other vendors, if there's a complicated problem, you may have to wait days for a developer or high-level engineer [to] address a situation. I know these situations are rare, but when you need that type of attention, you need it now," he says.

Sonasoft has come through for Dake and the NCOE even when the problem had nothing to do with Sonasoft's products. Dake says his office's Exchange server kept rebooting periodically, causing a panic situation. According to Dake, Sonasoft brought in one of its specialists to diagnose and fix the problem, which turned out to be a conflict with the NCOE's antivirus application.

"They knew it wasn't their issue, but they were willing to help us because we were a customer, and it was not working right and [we] didn't have the expertise available to diagnose it," Dake says.

Of course, Sonasoft's response demonstrates the company's understanding that happy customers typically stay loyal customers and are therefore more likely to purchase its other products. Dake says that originally, the NCOE was going to purchase only the SonaSafe email archiving solution and eventually add SonaSafe Exchange backup software. But once the NCOE's Exchange hardware started to malfunction because of its antivirus conflicts—and it lost a couple of drives in the process—Dake became increasingly concerned about the security of his Exchange data.
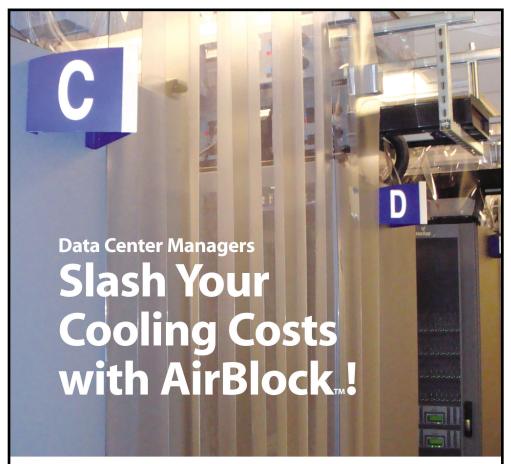
"I approached [Sonasoft] about helping me get the sort of backup program in place so that I could be comfortable that my data was secure, and technical support got it up, got it working, and got it configured for me, and I appreciated this because [Sonasoft] helped rescue us in what we thought was going to be a disastrous situation," Dake says. P

Sonasoft SonaSafe

Provides scalable and integrated archiving, backup, disaster recovery, and high availability. Uses SIS (single-instance storage) to secure all internal, outgoing, and incoming emails and archive them for easy retrieval. Provides remote management capabilities and reporting capabilities, among other features.

"It just functions. That's the best thing I can say. That's important being a small shop. We don't have time to tinker with things. We go from one issue to the next, and it's just a lot to take care of, so having a product that works is just incredible," says Brian Dake, director of information technologies at the Napa County Office of Education.

(408) 927-6200
www.sonasoft.com

The Ownership Option

Building Or Buying A Data Center Delivers Potential For Control Or Chaos

by Christian Perry

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FOR MANY FIRST-TIME homebuyers, the freedom accorded to them resembles a massive breath of fresh air. Want to knock out that wall? No problem. Don't like the wallpaper in the kitchen? Rip it down. But although that freedom can be liberating, it can be overwhelming and perhaps even precarious for those owners who have little experience in home maintenance, remodeling, and other tasks. The same reasoning follows for data center builders or buyers.

Organizations that decide to build a data center have complete control over the space from the design stage all the way to the final lights-on operation. For both builders and buyers, all of the equipment residing within the data center's walls is chosen by the owner. The advantages of tailoring design and equipment choices to the business are many, but with that power comes major responsibility and the ever-lurking potential for failure.

Stay In Control

According to experts, the overriding advantage of building or buying a data

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Key Points

- For organizations with unique needs or a desire to retain complete control over their data centers, building or buying can be a sound option.
- Possible problems include consequences resulting from poor location choices and unexpected maintenance issues.
- It pays to research hybrid approaches to owning a data center, including "brownfield" or "townhouse" models.

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center is control. Kris Domich, principal consultant for data center and storage solutions at Dimension Data (www.dimensiondata.com), notes that a significant perk is the ability to plan your physical space around your specific future capacity requirements. Compare that to colocated data centers, in which many organizations find that their equipment ends up occupying noncontiguous space, or even space in another building or campus, when capacity increases, he says.

"Also, keep in mind that the building/owning option does not always require acquisition of new real estate," Domich adds. "With many companies now downsizing, spaces suitable for data center build-outs are emerging within organizations in buildings they already own, and the conversion of one of these buildings—also known as a 'brownfield' build—may prove to be a lower-cost option than extending IT operations to another city or state."
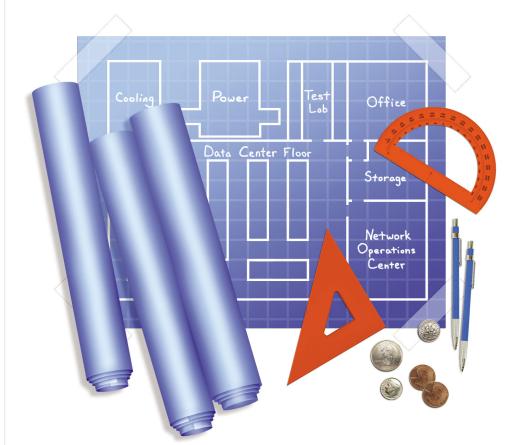
Louie Caschera, CIO of CareTech Solutions (www.caretechsolutions.com), says that building your own data center gives you the ability to control its design and security and implement your own technical and operating specifications. "If you have mission-critical systems that will run in your data center, then the data center will need to be designed and built to include

IT person on Earth, but data center design is a specialty. There are myriad types of infrastructure equipment you can choose from to support your data center's environmental considerations and requirements, and this requires expertise," Caschera says.

The hazards involved with the build/own option are not always obvious. For example, a company might find what it considers the perfect location for a new data center, but Caschera notes that the wrong location can minimize the services available from networking carriers if they offer only a limited number of services to that location. Further, the wrong location can minimize a company's ability to bring in redundant power from the local utility's substation.

expertise that covers areas such as air conditioning, UPSes, PDUs, generators, fire suppression systems, security systems, and network links.

Not All Cut & Dried

Marvin Wheeler, chief operations officer of Terremark Worldwide (www.terremark.com), suggests that enterprises look beyond just the cost and determine their core business. "Running a data center is something that is not often a core competency for an enterprise. So the formula [for determining whether to build/buy] is one of cost and determination of what the enterprise wants to budget resources on to manage their core business," Wheeler says.

The Pros & Cons Of Building Or Buying

Building or buying a data center can entail spending months or even years on research to determine if it's the right choice for your SME. Here's a glimpse at some of the advantages and disadvantages.

Pros

- Owners have complete control over location, design, and equipment choices
- Unique requirements are generally easier to accommodate than when using other options, such as colocation
- Spaces can be precisely tailored for future capacity requirements

Cons

- Poor design and planning can cause a wide range of problems
- Oversights on data center location can result in minimized access to resources
- Extensive expertise is required for maintenance and other tasks
- Costs are generally far higher than other data center options
- Building can take years to complete

> ## According to experts, the overriding advantage of building or buying a data center is control.

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required levels of security and redundancy to ensure uptime and availability," he says.

More To The Picture

The control inherent in building or buying a data center can be a major selling point, but it can also be a pitfall. Domich says that fully managing the real estate is a huge responsibility that can present challenges for organizations that are not accustomed to managing buildings.

"A poor data center design will equate to failure. You may think you are the smartest

"Another disadvantage to building a data center is cost," he says. "Can you afford it? The general rule of thumb to determine the estimated cost to build a data center from scratch is $1,000 to $1,500 per square foot, meaning the approximate cost to build a 5,000-square-foot data center would range from $5 million to $7.5 million. . . . If you are building a data center from scratch, plan on the process lasting at least 12 to 24 months. Then you need to ask yourself, 'Can my business afford to wait this long?' Or do you need a data center sooner to support your systems?"

Further, Caschera stresses that organizations need the right technical resources and skills to maintain the data center, including

Thanks to the flexible configurations available for today's data centers, the decision to build or buy isn't necessarily a black-and-white affair. Domich points to the "townhouse" data center model, in which a developer builds a large data center and sells a fully demised portion of it to another company. In this instance, the customer does indeed own the data center but retains the ability to leverage the facility maintenance and management of a larger provider.

Similarly, although cloud computing is becoming an option for some companies to replace data centers, Domich says that building/owning and cloud computing aren't necessarily mutually exclusive. In fact, certain iterations of the cloud can prove complementary to owned data centers. Building a data center and creating a cloud within it can in turn be used for a private backend resource data center model in which physical resources that support the cloud are dedicated solely for the data center owner's use. ▣

Lease Or Colocate?

Both Options Can Offer SMEs The Cost Savings They Need

by Chris A. MacKinnon

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SMALL TO MIDSIZED ENTERPRISES are finding themselves strapped for cash in today's economic climate. According to Randy Fougere, vice president of marketing at Fusepoint Managed Services (www.fusepoint.com), as the economy struggles and access to credit becomes increasingly difficult, many SMEs are facing challenges maintaining their IT infrastructures, the applications that drive their bottom lines, and the service levels their customers and employees have come to expect.

Because of this reality, SMEs are evaluating ways to save money and still provide a high level of service for their employees and customers. Many are turning to leasing and colocation as sourcing options for the enterprise, but there are advantages and disadvantages to both. What types of service levels can data center/IT managers expect if they take one of these routes? Can they really save money? And what types of enterprises should consider leasing or colocating?

A Look At Leasing

Fougere says IT hardware typically has a shelf life of three years and must be refreshed, which begs the question of whether you want to purchase the technology or lease it. He says a key advantage of leasing is that an organization can keep its cash. "Leasing provides an easier upgrade path because you don't have to worry about disposing of the systems you are upgrading from," Fougere explains. "If you need servers refreshed and don't want to directly invest in the equipment, a good alternative is to find an MSP [managed service provider] that offers end-to-end fully managed hosting." He says in this case, a provider will procure all the technology required and then manage the entire solution for a monthly fee.

The decision to buy or lease, Fougere says, is usually based on a number of factors. "Availability of capital is a key consideration at present. Other factors include the company's expense recognition strategy (that is, capital vs. operating), lease rates, and the life span of the products being leased," he explains. "The downsides are the interest amount paid to the creditor, which effectively adds to the overall cost. Also, in today's market, the amount of leasing capital available is highly restricted and therefore can be much higher than the stated federal prime rates." Fougere says this can make it difficult for SMEs to secure capital at reasonable costs.

Consider Colocation

Greg More, senior product marketing manager at Raritan (www.raritan.com), says if an SME is on the verge of needing to expand its data center, colocation can save it from the large capital expense of having to build its own. "They may also benefit from having what amounts to an outsourced IT staff, the expense of which is shared across multiple colocation clients," More says. "The extent of the benefits depends on the SLAs (service-level agreements) and what functions the company is willing to outsource."

More says that with the remote-access products that are available today, clients can manage their IT infrastructures easily without the need for a physical presence. "One area of concern for SMEs is electrical power charges," he says. "Typically, power charges are lumped into an all-inclusive charge per square foot. SMEs tend to have smaller power demands per square foot than larger companies, so the smaller companies end up subsidizing the power consumption of the larger companies. It is also prudent to look for colocation facilities with a low PUE (power usage effectiveness) so that the client isn't paying for inefficiencies of the colocation."

If possible, More says SMEs should install their own metered or intelligent rack PDUs, so they have some understanding of how much power they are consuming relative to what they are being charged. Will SMEs save money? "With the right SLAs and reasonable charges, colocation can be a very good option for an SME that does not want to invest in IT infrastructure," More says. "Particularly for smaller companies, they may be able to achieve levels of reliability not practical for a wholly owned server room."

SLAs & Savings

Fusepoint's Fougere says that when it comes to service levels, data center and IT managers should get out the magnifying glass to read the fine print. "There are many types of guarantees in the hosting industry," he explains. "Several years ago it was popular to advertise a 100% guarantee that technology will never fail. Anyone working with technology understands that some downtime is a reality and that achieving 100% availability is mathematically improbable and a marketing ploy at best."

The traditional industry "promised land" is 99.999% availability, which equates to one minute of downtime per month. Fougere says the acceptable standard for most companies is a guarantee of 99.99%, or less than five minutes of downtime per month. "You need to do your homework to see what exactly is being guaranteed, under what circumstances, and what the available credits are for noncompliance," he says. "As with anything, read the fine print and assess the potential partner diligently since all MSPs have different strengths and weaknesses."

As for saving money, Fougere says if a business relies on IT infrastructure to survive, the organization will need to make heavy investments building redundancy within their server, security, and network technologies. He says that in comparison to the costs, companies can definitely save money by outsourcing because the service provider can spread its costs over many clients over many years. "The other savings often overlooked is opportunity cost," he adds. "Outsourcing saves a tremendous amount of capital and energy that companies can redirect towards their core competencies."

In Fougere's opinion, the decision to outsource can be complex, but it really comes down to the key question: How mission-critical are your applications? "If extended downtime has a direct and meaningful impact on your sales, productivity, or the value of your brand, then the applications are mission-critical and demand the highest levels of availability and security possible," he says. "Reaching that goal is not a trivial exercise for any organization." P

Key Points

- Leasing saves money on equipment investments and provides an easier upgrade path.
- Colocation can save you from the large capital expense of having to build your own SME.
- SMEs should read the fine print of service-level agreements and diligently assess a potential partner before committing.

The Pros & Cons Of Leasing & Colocation

Leasing

Pros
- Lets you keep money that would be spent on equipment
- Provides an easier upgrade path

Cons
- The current economic state means capital is hard to come by
- Available leasing capital is highly restricted and can be much higher than stated federal prime rates

Colocation

Pros
- Can save you from the expense of having to build your own SME
- Depending on the robustness of the facility and its network architecture, high availability can be achieved

Cons
- Electrical power charges could be lumped into an all-inclusive charge per square foot
- If the facility has a high PUE (power usage effectiveness), you could end up paying for inefficiencies of the colocation

Outsourcing Opportunities

This Option Can Offer Significant Savings, But Is It Right For Your SME?

by Bruce Gain

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THE BENEFITS OF outsourcing, in theory, are clear cut: Significant cost savings can be realized by paying a third party to manage IT services for a lot less than what it might cost to administer them in-house. Whether you are looking at storage, server maintenance, or much-touted newer offerings such as cloud computing, opportunities associated with saving money by not having to find and pay for in-house talent for certain services help to make the idea very appealing.

Key Points

- Before entering into a service agreement with an outsourcer, there are several factors to consider when determining whether the advantages offset the downsides.
- Become educated about which service providers might work best to help ensure a good fit—ask questions, read up on the provider in trade publications, and ask for references.
- Security will always remain a concern, especially for data, which carries with it legal liabilities.

According to Tom Addonizio, director of strategic outsourcing for IBM, outsourcing IT services can offer anywhere from 20 to 80% in cost savings, while infrastructure outsourcing in general can allow enterprises to save upward of 30% over a period of time. "There are also potential balance sheet benefits with the ability to shift capi-

> ## Security concerns remain a key impediment for outsourcing, especially for storage applications.

tal expense to operating expense. This can free up cash and optimize cash flows, which is a critical concern in these trying economic times," Addonizio says. "More than just monetary savings, many clients who have outsourced have outperformed companies that have not on a number of dimensions by shifting their focus to their core competencies and away from day-to-day management of IT issues."

Outsourcing Pros & Cons

Many enterprises stand to benefit from outsourcing opportunities, but the potential benefits are not always clear cut. Here is a look at the pros and cons.

Pros	Cons
• Paying a third party to handle certain tasks makes sense if in-house skills are lacking	• Offloading a portion of your data center's operations can involve security risks
• The right vendor or service provider may be able to do the job for less than it would cost to do in-house	• Vendors—and therefore their services—can be affected by management shake-ups or other problems
• Outsourcing services can be used on an as-needed basis and can eliminate in-house staff redundancies	• Outsourcing may not be ideal for companies with proprietary systems that require specialized staff to run

Data center managers are increasingly relying on third parties to assume the capital outlays, day-to-day management, and everything else that goes with running a data center, but is outsourcing the right solution for every SME? Here is a look at how outsourcing might work for you and what to look for in a vendor, as well as a few of the risks involved that limit outsourcing's adoption.

The Right Fit

In the best-case scenario, you will have as much control over your data and operations when relying on a third party to run essential tasks as you would over in-house staff. However, a perfect fit hardly exists when looking at different third-party service providers—or when hiring in-house staff, for that matter. But a good place to start is to find out what analysts and others have to say about different services and providers, says Stewart Hair, managing director of data center services and product management at HP (www.hp.com).

"You want to educate yourself and get a broad spectrum by reading what has been written about [outsourcing] and what your questions should be [to potential vendors]," Hair says. "If you have never done any outsourcing, you probably don't know what questions to ask."

Once you have selected a short list of potential outsourcing candidates, you then want to inquire about and contact references. "Ask about the good and the bad," Hair says. "Like in a marriage, there is good and the bad."

A key component of the vendor selection process is closely scrutinizing the vendor contract before jumping aboard. Every term in a service agreement must be studied with the help of qualified legal counsel, says Jim Hurley, senior research manager at Symantec (www.symantec.com). "You have to spell everything out in detail, about what kinds of service levels you are expecting and what your recourse is if the service level is not delivered," Hurley says. "You also have

to have discussions with legal. There is no other way to protect the company."

Is This For SMEs?

As a small to medium-sized enterprise, in which one person so often has many duties that each might otherwise be relegated to one person in a large enterprise, outsourcing can indeed make sense, proponents say. Outsourcing services can benefit any type of enterprise, whether it is an SME or a multinational firm in the private or public sector, Addonizio says. "Any client who is interested in achieving cost efficiency, reducing risk, and obtaining the flexibility to meet the changing demands of their business will be a good candidate for outsourcing," he continues.

However, some contend that outsourcing is not meant for every enterprise, either. For example, some companies have proprietary setups that might be difficult for outsiders to manage. "Many of our systems are custom so that it's harder for out-of-house people to support our systems than it would be for our in-house staff," says Brad Kowal, an IT manager for Shands HealthCare in Florida.

According to Kowal, relying on in-house talent and capabilities is the most viable solution for Shands because physical access is still required for administration tasks and because applications involve significant file sizes, such as radiology image transfers. The different outsourcing options Shands

looked at "all came with an increased price tag," he adds.

"Outsourcing only makes sense if the company you work for doesn't want the overhead issues associated with IT and running a data center," Kowal says.

Security Concerns

The very idea of handing over data and the management of key operations to a third party as part of an outsourcing agreement raises red flags. Depending on the application, relinquishing the stewardship of parts of your data center to an outside firm can carry with it a host of legal and security questions. In the case of storage, for example, less-than-reliable vendors can pose significant concerns.

An offsite storage company might, for example, meet your requirements when you sign on with them but later cut costs and reduce the level of security as a result, says Symantec's Hurley. "It may be a case of

where anybody can come and go inside the facility [where the data is stored]. We have seen that stuff has been backed up and nobody can find it after receiving legal requests for information."

Security concerns remain a key impediment for outsourcing, especially for storage applications, says Giorgio Nebuloni, an analyst for IDC. "Security remains one of the main worries affecting CIOs that consider implementing partial or global outsourcing strategies, and it is also one of the main hurdles for the expansion of cloud-based offerings such as online storage or cloud computing infrastructure on demand. IDC research [shows] that companies are generally pushed towards a stricter security approach by compliance and governance, and outsourcers must prove that they can comply with the required level of data protection," Nebuloni says. "Particularly in the short term, and within highly-regulated verticals like finance, outsourcing of critical data and processes may follow a slower path because of that." P

SaaS & Cloud Considerations

Online, On-Demand Services Can Cost-Effectively Meet Many IT Needs

by Kurt Marko

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UNTIL RECENTLY, the popularity of cloud and SaaS services has largely been fueled by technology—ubiquitous high-speed Internet and virtualization software—and convenience—the ease of providing new IT functions without buying, deploying, and managing any hardware or software. Today's economic meltdown may catalyze even faster adoption of these hosted services as beleaguered IT managers face continuously escalating user demands with rapidly shrinking budgets and headcount.

Chris Howard, vice president and services director at Burton Group, characterizes the impetus behind outsourced, subscription-based services as a cost-driven one, as renting these services from a dedicated provider is generally less expensive than building, staffing, and operating them in-house.

Types Of Hosted Services

Lacking standard definitions and compounded by overuse in marketing materials, the terms "cloud computing" and "SaaS" are often used interchangeably; however, there are distinctions between the two. Howard describes cloud computing as providing a "raw" or "dumb" compute utility—what amounts to basic compute resources without any business applications or processes. In contrast, he sees the SaaS model as augmenting cloud-based resources with packaged, ready-to-use software and supporting administrative processes.

Jeff Kaplan, founder and managing director of THINKstrategies (www.thinkstrat egies.com), defines SaaS as the remote delivery of commercially packaged software solutions sold by subscription. On the other hand, the cloud, which focuses on raw capability, is sometimes used as the foundation for more complex services such as virtualized server platforms and even SaaS solutions.

Where SaaS Makes Sense

Kaplan says a misperception about the software-as-a-service market is that it targets only SMEs that need to provide enterprise applications but lack a large IT staff or budget. He admits that SaaS initially appealed to such resource-starved organizations, but he's seeing accelerated adoption

by enterprises of all sizes, across industries and business units.

According to Kaplan, SaaS has moved into many application categories, such as online collaboration, Web-based conferencing, and even such back-office functions as financial systems. He notes that although SaaS vendors originally appealed to business units, with IT often serving as a roadblock, there are now hosted solutions for IT itself—everything from cloud-based storage and network security management to help desk and ticketing systems.

Howard advises IT managers to consider rental for applications and functions that have become commoditized—things such as email, testing platforms, and even basic office productivity tools. Trisha Gross, president and CEO of data integration service Hubspan (www.hubspan.com), believes that virtually any commonly used IT service is now a candidate for the cloud. She adds that the only applications not a good fit for the cloud are those unique to a business or where IT requires, and is willing to pay for, complete control over the infrastructure.

SaaS initially found wide acceptance as a way to implement complex, costly software.

Key Points

- Know the difference between the different types of online, subscription-based services such as cloud, SaaS, and platforms.
- Understand the areas where SaaS and the cloud make the most business sense.
- Costs, functionality, and service levels are criteria customers should consider before signing a contract.

In its SaaS Buyer's Guide, industry research firm Aberdeen Group identifies two key SaaS opportunities: business process suites—complex software such as ERP and CRM systems—and business process extension—using SaaS to automate and extend supply chain processes, supplier collaboration, and logistics. Echoing Gross' point, Aberdeen writes, "In essence, CIOs are adopting an IT portfolio approach of investing internal IT resources on business differentiating areas, with the goal of using external technology experts for non-core processes."

SaaS Evaluation Criteria

One of the problems in evaluating cloud and SaaS solutions is their sheer variety, as different levels of buyer control or customization means they can't be uniformly characterized. Elements they share include pay-as-you-go and usage-based pricing and reliance on the Internet for delivery. Thus, both offer low startup costs, one of their primary advantages; however, THINKstrategies' Kaplan adds that outsourcing application infrastructure also yields long-term savings by eliminating power usage, operational staff, and hardware and software upgrades.

The growth in cloud services and the SaaS market has been a mixed blessing, according to Kaplan. The proliferation of vendors has led to a wider array of solutions and more competitive pricing; however, this abundance has caused customer confusion. Kaplan cautions that because many new SaaS vendors are startups trying to capitalize on a hot trend, their long-term viability is suspect given today's economy; thus, he advises prospective customers to carefully evaluate a vendor's financial viability, funding sources, and history or track record. "Find out who else is using the service," adds Gross, saying that large reference customers can provide some assurance that the service has reached critical mass.

When assessing vendors, a report from Info-Tech Research advises examining their infrastructure and operations, including data center facilities, business processes, support staff, and ease of data access and integration. Given that valuable company information will be stored remotely, Kaplan stresses understanding the vendor's data management practices—where data is stored, how it's protected, and how easy it is to access.
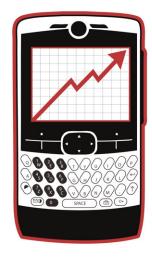
Like any outsourced IT service, SaaS or cloud customers need an SLA specifying both performance and uptime guarantees, along with escalation procedures. "SLAs are absolutely critical," says Hubspan's Gross.

Although the economic meltdown is fostering interest in SaaS and cloud services, Kaplan says today's acute financial uncertainty is putting IT departments under such stress that most have become so risk-averse that they've frozen most new projects. Therefore, although many IT managers are kicking the tires, fewer are ready to take SaaS and the cloud out for a test drive. Yet Gross feels that although some in IT feel threatened by cloud-based services, these services do offer an effective strategy for doing more with less while letting internal IT staff migrate to more valuable business-focused activities. [P]

Cloud/SaaS Pros & Cons

Surveys conducted by Craig Roth, vice president and service director at Burton Group, have found that although cost reduction is an important reason enterprises are considering SaaS, it's not the leading factor. Here are some of the major pros and cons.

Pros	Cons
• No in-house maintenance	• Increased information security risk
• Shorter rollout time for new applications	• No or diminished functionality if Internet connection is lost or degraded
• Applications usable anywhere via the Internet	• Applications less customizable
• Faster update and improvement cycles	• Data backup and recovery entrusted to vendor
• Short-term financial benefits (no acquisition costs) and lower long-term cost (no hardware and software upgrade cycles, no ongoing operational costs)	• Risk of higher long-term cost
• Predictable, easily budgeted costs	• Functionality and interface can change without notice
• Better or more up-to-date functionality and support expertise	• APIs and database schemas often proprietary
• Easily scales up and down with application demand	• Inability to monitor system performance and uptime with same tools used for internal systems

SIX QUICK TIPS

Evaluating SSDs

How Well Will This New Storage Technology Work In Your Environment?

by Christian Perry

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THE EVOLUTION OF a typical data center is naturally dependent on the hardware that inhabits it. However, in the case of storage, hard disk drives have been a domineering inhabitant for so long that the concept of adding solid-state drive technology can create unique challenges when it comes to evaluation.

Planning Is Priceless

Successful hardware evaluations are consistently tied directly to successful planning, and that's particularly true for SSDs. To effectively compare the workloads of SSDs vs. HDDs, data centers must first choose applications or subsets of applications that will make that comparison possible, says Rob Peglar, vice president of technology for Xiotech (www.xiotech.com).

"Part of that planning is also establishing optimal metrics that will result in the business being able to effectively compare technology that actually 'matters' to the outcome. These metrics will vary from application to application and business to business. Knowing which ones to evaluate requires planning," Peglar says.

Once the metrics are established, it's time to begin the measurement, which Peglar says should involve multiple factors, including the application, operating system, and storage (and/or storage networks) layers. After the comparisons are completed, the metrics must be judged again on business merit because,

Peglar explains, unexpected results are bound to appear and must be accounted for. Further, several iterations of replanning and resizing may occur "as a natural—and not unexpected—result before final judgment is passed," he says.

Target The Random

According to Hubbert Smith, director of enterprise storage marketing at Samsung Semiconductor (www.samsung.com/us /business/semiconductor), typical SSD data sheets reference sequential transfer in megabytes per second, while they might simply make mention of random I/Ops (input/output operations per second). However, data center environment workloads are a mix of both sequential transfer and random I/O.

"Where HDDs read and write at roughly the same speeds, SSDs read faster than write," Smith explains. "The bottom line is that data center workloads are mostly random I/Ops and usually mostly read functions. So we should pay most attention to random I/Ops performance than focus on sequential transfer [rates]. Sequential transfer is relevant for laptops but not so relevant for data centers."

Know Your Memory

Jumping headfirst into an SSD evaluation project without prior knowledge of SSD technologies can be counterproductive. An important factor to consider is the varied types of flash memory used within SSDs, including MLC (multilevel cell) and SLC (single-level cell).

"MLC flash memory tends to realize more capacity for the same capital expense,

at a cost of reduced write performance and lower cycle rating," says Steve Merkel, director of solution engineering for Latisys (www.latisys.com). "Conversely, SLC flash memory realizes greater write performance and an improvement 10 times greater on the cycle rating but tends to cost more."

To get a better handle on which type of memory is more appropriate for a certain data center environment, Merkel says that it's important to have an understanding of the workload. For example, if the application is read-intensive, it can make sense to use MLC-based SSDs. On the other hand, SLC-based SSDs might be a better fit if the read-write ratio is weighted on the write side.

Many experts contend that it's worthwhile to evaluate SSDs that use each kind of flash memory, but one appears to have a significant advantage. "For data centers, we recommend SLC over MLC because a data center has a high duty cycle, and endurance can vary from 10-to-1 up to 300-to-1. Will MLC work in a data center environment? Sure, but SLC seems like a better fit for today's data center requirements," advises Robert Wheadon, senior worldwide product manager for solid-state technology at Lexar Media (www.lexar.com).

Examine Multiple Options

The SSD market is quickly blossoming, leading to a wealth of options for data center managers looking to add the storage technology to their environments. Eric Seidman, storage systems manager for Verari Systems (www.verari.com), says that it's worthwhile to evaluate SSDs from two or three major manufacturers because different SSDs have different performance characteristics.

"One key area of consideration is to evaluate how the SSD manages its onboard cache. In typical storage systems utilizing HDDs, the onboard cache can be turned off so that data integrity on writes is ensured,

BONUS TIPS

■ **Create a test bed.** Rob Peglar, vice president of technology for Xiotech (www.xiotech.com), recommends creating a test bed for SSD and then concentrating on known application workloads that may be amendable to SSD, such as placing database log files on SSDs while keeping tablespaces on HDDs. "Do not try to boil the ocean. Take the evaluation step wisely and insist on repeatable, consistent results and comparisons. That approach will serve the business well over the long run. Understand the TCO of using SSD and its proper place in the compute hierarchy," Peglar says.

■ **Don't overanalyze.** According to Hubbert Smith, director of enterprise storage marketing at Samsung Semiconductor (www.samsung.com/us/business/semiconductor), it's easy to fall prey to "analysis paralysis" when evaluating SSDs, but that trap can be avoided. "There is so much discussion, discourse, and discord about SSD, it's easy to get lost in the debate and fall into inaction," he says. "Don't. Instead, try for yourself—get the facts for yourself in your environment and become the resident expert. Someone is going to do it. Why not you?"

SIX QUICK TIPS

Recycle Used Equipment

When Updating Equipment, Make Sure That Old Machines Stay Out Of The Landfill

by Elizabeth Millard

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IN AN ECONOMY THAT FAVORS LEAN operations, and with data centers employing more virtualization than ever, IT managers are increasingly facing the question of what to do with machines that are ready for retirement. Here are some quick tips for making sure that equipment is recycled safely and swiftly.

Get Help Or Get Informed

Although it's possible to recycle equipment without outsourcing the work, it's usually preferable to stick to the experts on this one. Not only do they have the type of data-wipe technology that's necessary,

but they're also up on current state and federal legislation regarding the disposal of technology. Reputable recyclers also carry liability insurance so that if there's some kind of breach, their clients aren't held responsible.

If you're feeling inclined to go it alone after all, make sure to put a standardized process in place that addresses how data is removed from the machine, who's responsible for data destruction, and whether the asset will be refurbished for another purpose or marked for disposal.

Check Out The Outsourcer

If your small to medium-sized enterprise is going the outsourcing route, take time to

really dig into the research about which service might be best and how the outsourcer fits into the larger plan, advises Bob Houghton, president of asset recovery and management firm Redemtech (www .redemtech.com).

"A service provider may have suggestions for enhancing a company's program, but the customer needs to know what they want in a recycling program before they start talking to vendors," he says. "You'd be surprised at how many companies don't know this kind of information and then end up not asking the right questions."

Those questions, he notes, include issues such as: What is the level of liability coverage? Where is the equipment stored and shipped? How do the machines get delivered from the company to the facility? How is data handled? Will the SME get a percentage of the sales if the equipment is resold? What type of assurance and paperwork is provided for an SME's files?

Also important, Houghton adds, is a visit to the service provider, even if that means traveling to another state. Data destruction and equipment recycling is crucial to a healthy upgrade cycle, so simply chatting with a vendor a few times on the phone isn't enough.

Houghton says, "In this industry, we're all good at putting together a sales presentation, but what you really need to know is the vendor's operational maturity. And for

that, you have to do an onsite audit of the operations, see their processes, get production flow diagrams. It can be a complicated process, and your service provider should be able to explain everything."

Double-Check Maintenance Contracts & Power

In the midst of recycling—with or without an outsourcer—don't overlook other aspects of the equipment disposal, particularly maintenance contracts. It may seem like a minor detail, but many SMEs could be spending a large chunk of change for contracts that cover equipment that's no longer in the data center or is waiting for disposal.

Another small detail that tends to get lost in the process is physically pulling the plug on the equipment. A server or appliance may get taken off the network but could still be drawing power, notes Uptime Institute's Executive Director Ken Brill. He believes that up to 30% of corporate servers are "basically zombies."

Establishing a policy that addresses contracts and physical removal is important and can save on power and cooling, as well as management. Equipment should be stored in a safe area but shouldn't be stacked up in a corner of the data center—adding to the footprint and the cooling demands—or put in a spot that's ignored for months.

Know The Asset Value

Many recycling firms do refurbishment, and this can be a good option if a company wants to start an employee buyback program or to donate the equipment to a nonprofit organization, such as a school or local organization. In either case, it's

BONUS TIPS

■ **Find a nonprofit partner.** Establish a relationship with a local school or nonprofit organization that can lead to long-term opportunities for donation. Not only can this connection help with recycling needs, but a school would also be able to anticipate what type of technology might be coming down the line in a few years and plan purchasing accordingly.

■ **Select someone to be in charge.** Make recycling and disposal the task of one person in the data center, preferably the one who also does any purchasing or technology research. If a data center is small with only one or two people, the duties can be shared, but when there's a larger team with numerous tasks being shared, recycling tends to get shuffled around and ignored.

as it bypasses the disk's cache [and writes] directly to the drive. Cache bypass and backup technology on SSDs varies by manufacturer," Seidman says.

He adds that this cache concern is often overlooked, but it nonetheless should be explored, especially in environments where high levels of data integrity are required. Evaluating SSDs from different manufacturers can help data center managers determine whose SSDs will have the best performance associated with a particular environment. **P**

Best Return On Investment:
Take A Balanced Approach

When evaluating SSDs, it's crucial to seek a balance between performance, cost, and dependability, says Robert Wheadon, senior worldwide product manager for solid-state technology at Lexar Media (www.lexar.com). For example, organizations might be tempted by products sold by new manufacturers, but what happens when a problem arises down the road and the supplier is no longer in business? Along the same lines, it's important to ensure that the drives being evaluated are designed for the data center.

"Technology is changing quickly in this space, and much of the hype is focused on performance products that are typically designed for consumers," Wheadon says. "For a data center, you will want products with longer life cycles so you aren't continuously testing new revisions. You want products with a controlled bill of material—not one where components are constantly changing to achieve the lowest cost available and perhaps [where] quality is traded for cost savings."

Biggest Immediate Payback:
Use Available Resources

There are plenty of storage evaluation tools available on the market, but Hubbert Smith, director of enterprise storage marketing at Samsung Semiconductor (www.samsung.com/us/business/semiconductor), stresses that it pays to become familiar with Iometer (www.iometer.org), a free I/O subsystem measurement and characterization tool for single and clustered systems.

"Take a look at your enterprise software environment and storage environments. Capture typical I/O sizes, percentage of read/write, queue depth, percentage of random/sequential. Then take these basic parameters and plug them into Iometer. Run Iometer tests against your drives and the potential SSD replacement. It will open your eyes," Smith says.

Steve Merkel, director of solution engineering for Latisys (www.latisys.com), adds that it's important to collect data within your production environment prior to initiating the testing phase because you'll want to understand the ratio between reads/writes, as well as the rate at which space is consumed (and at which data is deleted), under production workloads within your environment.

advantageous to understand the resale value of the item because it can result in a nice tax break if there are donations involved. Also, it helps to set a fair price for employees in any purchasing program.

If the refurbishment is done for general reselling, there's a chance that the SME can get a portion of sales. Establish up front with a vendor whether this is a possibility and get an idea about the amount of money that usually comes back

to a customer. This type of data can sometimes make it easier to "sell" a CFO on an outsourcing program because it reduces the total cost of the service.

"There are a number of options for what to do with refurbished equipment, and an SME should talk to their service provider about being creative," says Cliffie McKay, director of operations at DMD Systems Recovery (877/777-0651; www.dmdsystems.com). "Going only for disposal is short-sighted." **P**

Best Tip:
Document Data Destruction

Part of a robust recycling program will always include extensive information on what type of data is being wiped, how it's done, and the date of the digital shredding.

There are numerous laws surrounding this area, particularly if a company is publicly traded, so a small to medium-sized enterprise has to be sensitive to whether data needs to be stored elsewhere, as well as eradicated on the machines up for recycling. Bob Houghton, president of asset recovery and management firm Redemtech (www.redemtech.com), notes, "There have to be policies around data destruction and compliance, as well as financial reporting and environmental and safety reporting." Metrics have to be created, he adds, to show that regulations are being followed.

Most Affordable Tip:
Tap Into Vendor Programs

If an SME is up for some long-term planning, it can be beneficial to purchase technology from a vendor that has a recycling and refurbishment program in place. Some vendors offer buyback programs that reduce the cost of recycling, with a few offering environmentally safe disposal services for an additional fee.

Another option is to join together with other SMEs to reduce costs. This can be on a local level by doing bulk shipments to a recycling service or on a national level with an association such as CompTIA, which has developed a recycling program, AnythingIT's Recycle Tomorrow, for its members.

How To

Plan For Future Data Center Capacity

The Key To A Successful Build Is To Design A Set Of Business Requirements

by William Van Winkle

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NO MATTER HOW GRIM a current environment might look, smart enterprises never stop anticipating growth. In fact, at a time when many enterprises are hunkering down and waiting for the economic storm to pass, the opportunity to pause and plan should be welcome. This is the time to give long thought to future growth, and data center capacity should be a key part of that planning.

Plan The Build

Some enterprises undoubtedly have a new data center at least on the drawing board, if not in the build. And obvious as it may sound, there is a lot of due diligence and thought that must go into the planning process, yet a shocking number of companies fail in this regard. According to Charles Rego, P.E., chief data center architect, high-density computing division at Intel, about 40% of the enterprises he advises fail to follow proper planning practices. The consequences of this failure can be massive.

"For example, I worked with two major corporations who went off and short-changed the planning cycle," says Rego. "They built millions of dollars [worth] of data center[s], moved the equipment in, and on Day One they were out of power. From first information to build-out, that was 18 months, and nobody ever caught it."

Rego emphasizes that data center planning must start with designing a set of business requirements. What are you using your data center for? How do you bring together the curves of supply and demand as closely as possible? Failure to consider these things can result in a facility being overbuilt or underbuilt.

Perhaps the most critical business requirement to assess for a new data center is the type of redundancy employed, which needs to mesh with an enterprise's business requirements and the criticality of its application(s). As you may know, "N" is a state of nonredundancy. N+1 adds a failover system in the event of a single failure, while 2N creates a complete mirror of the original N array. However, only 2N+1 is classified as fault-tolerant. Unfortunately, many companies persist in the N+1 state, and all it takes to crush an N+1 is two concurrent failures or one failure during maintenance. Thus, when planning for future capacity, anticipate not only the systems for fault-tolerance, but also the surrounding infrastructure needed to support those systems.

One of the biggest question marks in capacity planning is trying to identify how far out you should project. Nailing Day One is usually simple enough (examples like the one described previously excepted), and most enterprises have enough historical growth data to create educated guesses for nearly three years. Beyond three years, extrapolation becomes more difficult. But one secret may be in analyzing past growth in terms of exponential rather than linear growth. Look at the past progression of processing capabilities and corresponding

Key Points

Whether your company is in the midst of a data center build or planning for future capacity expansion, proper planning can prevent a world of woes. This includes making sure you have the right experts involved in both the IT and architectural planning. Consider factors ranging from appropriate redundancy to future evolutions in technology. If a retrofit makes more immediate sense, then technologies such as virtualization can help meet capacity goals provided they're implemented with proper management and backed with improvements to the supporting infrastructure.

power demands. Straight lines rarely apply over prolonged periods. Also be sure to account for planned business initiatives. If your enterprise is looking to add a new division after hitting a three-year milestone, then that needs to be accounted for in the data center design.

Just as initiatives have to be anticipated in the capacity equation, so do leaps in technology. Consider the impact of, say, a major advance in generator systems, networking, or computer processors. Five years ago, for example, Intel saw servers with single-core CPUs built on a design meant to maximize raw speed with little regard for thermals or power consumption. Today, CPU designs and priorities have changed radically, and the impact is felt in many facets of data center design and usage. But leaping from one processor generation to the next can entail

TOP TIPS

- Some applications are mission-critical and must be fault-tolerant because it would impact the business drastically if they went down, potentially even resulting in the business's closure. Truly critical applications must be supported with an appropriate redundancy level, typically 2N+1.

- "During electrical and mechanical systems design reviews, it's good to have a third party model those using computational fluid dynamics," advises Charles Rego, P.E., chief data center architect, high-density computing division at Intel. "You can create a model of the data center and examine what the airflow's going to be, the power consumption, and you can see if the design will actually work, including in the case of failover."

- With finite energy resources, challenge some assumptions. If you didn't have to allocate as much to HVAC, could you add more servers?

How To

Evaluate Windows 7

Is An Upgrade In Your Future?

by Jean Thilmany

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IF YOUR ENTERPRISE is considering upgrading its operating system, then maybe it's time to clean house and prepare for a new installation. Recent tech blogs and the press have been abuzz with the capabilities and features Microsoft Windows 7 (currently in beta) offers. But you may be wondering how to decide if, and when, your enterprise is ready for the new OS.

TOP TIPS

- When evaluating Microsoft Windows 7, assess cost savings and have a migration strategy in place.

- Moving to a new operating system is a perfect time to clean house. Consider doing away with unused applications (and their licensing costs).

- Moving directly from Windows XP to Win7 is possible, but you'll need a migration strategy.

- You won't necessarily need to upgrade hardware if you move to Win7.

Properly evaluating Win7 and planning for its deployment is key to building a solid business case and reaping the benefits of a modern, well-managed desktop, says Ryan McCune, resident Win7 expert at Avanade, an IT consultancy based on the Microsoft Enterprise platform.

When considering Win7, itSynergy owner Michael Cocanower suggests making sure you're up-to-date on how the product is going to come to market.

The version choices available for Win7 are different than they were for Windows Vista at its release, he says, and IT managers need to understand the differences to select the right version based on business requirements.

"The way Windows 7 has been described to me is sort of as a Russian doll: When you go up the version chain, the version on top of the chain includes all features of the one below plus new features," Cocanower says.

"This isn't exactly how Vista works today," he explains. "There's a whole bunch of different versions of Vista, like Home and Enterprise. Each version includes some things the others don't."

With this in mind, IT managers need to ensure they choose the proper Win7 version for testing. "If you can't wait to get your hands on a feature . . . and you buy the version that doesn't support that [feature], you'll be disappointed," Cocanower warns.

Key Points

A move to Microsoft Windows 7 can be beneficial because it could mean cutting costs and streamlining desktop operations. Evaluate your applications and current operating system to determine whether a move is right for your enterprise. Also consider new technologies, such as virtualization, that you can implement at the same time.

Migration Strategy

Carefully evaluate your migration strategy. The migration from Vista to Win7 is very different from that of Windows XP to Win7.

Although Microsoft assures customers that their migration from Vista to Win7 will be seamless, it hasn't yet announced the process by which users will migrate from WinXP to Win7, Cocanower says.

That's not to say organizations shouldn't move directly from WinXP to Win7. As part of their evaluation, enterprises need to determine exactly how they'll handle migration, he adds.

Therefore, deployment strategies should definitely be part of the evaluation, says Cocanower.

"There's more to think about for the organization that's held back on Vista and is going straight from [Win]XP to [Win]7," he says. "If you're going to skip Vista and go directly to [Win]7, will you wipe your machines out and start from scratch or wait to see if Microsoft supports a different migration strategy? You'll need to figure that out."

An upgrade to Win7 doesn't automatically mean a hardware upgrade is necessary, though this has been true when moving to new Microsoft OSes in the past.

"Small to midsize businesses rarely buy new versions of operation systems without also upgrading the hardware," Cocanower says. "A lot of times, that's because the upgrade performs better on new hardware. But I don't think that's necessarily the case with Windows 7."

He explains that Win7 should run fine on desktop computers currently running WinXP or Vista. "Now, will a 5-year-old computer run smoking-fast on [Win]7? No, but you may be surprised at how well it performs even on that old hardware," Cocanower adds.

You also need to ensure any third-party applications your company relies on will support Win7. Ask your application vendors now when they'll begin support for Win7. Likewise, make sure internally developed applications will properly support the new operating system.

He advises setting up virtual desktops that run Win7 so internal developers can test their applications on the system.

Lower Costs

The manner in which organizations adopt Win7 is the most important factor in reducing desktop costs, which is, of course,

many complexities in weighing costs vs. benefits, and understanding such future ramifications takes more than a Google search. It requires expert advice from manufacturers, analysts, and other industry sources.

Your enterprise may need to employ an expert who can translate IT specifications into architectural engineering specifications. According to Rego, many companies simply grab a star performer from operations and task him to head up the new data center's development, including definition of the facility's requirements. Unfortunately, IT and engineering speak different languages. The situation calls for an outside expert to bridge this gap. This expert can also help make changes at periodic points during the planning phase so enterprises can avoid costly changes after construction begins.

Extend The Investment

Again, times are tough, and not every enterprise can afford a new data center. Yet older facilities may be buckling under the load of continuing growth. A retrofit probably won't get a data center through 20 years, but it may be sufficient for another five, and that's good enough for many enterprises seeking the most cost-effective way to survive the downturn.

"A lot of data centers we have now become very old," says Michelle Bailey, research vice president of data center trends and strategies at IDC. "The average data center in the U.S. is 12 years old. You can imagine why we've seen so many power and cooling issues. Customers have found themselves at the edge of what they can get even from the utility company."

In a data center retrofit, the goal is often to enable expansion through consolidation—an oxymoronic idea largely grounded in virtualization and improved approaches to cooling. Bailey notes that

while the average customer can consolidate five applications into one physical server; more practiced admins are getting virtualization ratios of 20:1 or 30:1.

Not only does virtualization allow for the consolidation of many standalone legacy systems, it also reduces the need for discrete redundant systems. With 2N+1 deployed across five applications, it's feasible to have one physical machine be the "+1" for all five apps. The physical footprint savings can be huge, meaning fewer racks and rows and thus a lot less strain on temperature control systems.

The trouble with virtualization can be that it's too easy and affordable, resulting in an explosion of virtual system sprawl unless you have a solid set of policies built around virtual machine installation. The enterprise has to invest in systems management tools and automation, but the payoff may well be a significant forestalling of data center expansion.

Concurrently, the challenge is to drop overall power consumption. Some tactics are so obvious that many enterprises overlook them, such as putting blank panels over empty rack bays. This serves to prevent heat from leaking out of the front of racks and into cold aisles. Similarly, look under the racks. Especially in older data centers, the plenum is often used to convey cold air through tile holes and up into systems areas. But as generations of cabling get added, airflow in the plenum suffers. Consolidate this cabling and bundle it properly to improve airflow and area cooling.

As with a new data center, such new configurations can be modeled before and after implementation with expert help. Run the numbers and see if a retrofit can buy your enterprise the time it needs to save money while continuing to leave headroom for growth and meet short- to intermediate-term capacity needs. ⓟ

important in the current economic situation, says McCune.

Ahead of a move to Win7, enterprises should establish a basic framework to decide which applications to standardize.

With such a framework in place, IT managers can properly evaluate which applications to bring with them to the new OS. McCune says to think about it in terms of cleaning house before a move —much the way you would get rid of clutter when moving. In other words, don't bring all your applications along for the upgrade; evaluate how important each is to your daily operations.

"A lot of companies think about an OS upgrade in terms of application compatibility, but you have to consider things like:

complexity out of connecting to an enterprise network.

"Many of our customers use virtual private network software to connect to their office[s] while at an airport or a shop," says McCune. "But in Windows 7, you can have that constant access to your home office seamlessly without going through dialing-in or authenticating or connecting. You're just connected."

Doing away with wireless and direct-access applications separate from your OS will, of course, also decrease per-seat desktop costs, McCune says.

This is also a good time to consider new technologies that you can implement in tandem with a wholesale OS upgrade, advises McCune. Reference the previous

> ## If you're considering making your desktop applications virtual, an OS migration is the best time to do this.

Do these applications even make sense to use? Does it make sense to take them along during migration?" he says. "When you look at licensing implications of those unused applications, you can reduce costs and manage the desktop."

When it comes to measuring cost savings, McCune says you should also consider technologies you may currently pay for separately but that may be included in Win7. These features include the capability to run secure wireless technology, as well as direct-access features that take the

house moving analogy: Just as you'd take the time to paint and sand floors while your new house is still empty, a fresh, clean OS can be the time to consider new installations.

If you're considering making your desktop applications virtual, an OS migration is the best time to do this, McCune says.

By thinking long term when eyeing a move to Win7, McCune says, enterprises will find the migration a perfect time to cut some IT costs and more smoothly manage desktop and enterprise function. ⓟ

▐ **IE Can Be Disabled In Windows 7**

Internet Explorer 8 can be disabled in the Windows 7 Release Candidate, Microsoft has confirmed. Windows 7 RC also lets users disable other Windows components, such as Windows Media Player, Windows Media Center, and Windows Search. Once those features are disabled, Windows won't load their associated binary and data files. The data files, however, are assembled so features can quickly be enabled in the running OS without any extra media. Jack Mayo, a group program manager with Microsoft's Documents and Printing team, says these changes will give users "more control, flexibility, and choice" in managing Windows features.

▐ **Google, LGE,
Citrix Settle Lawsuit**

Google, LGE, and Citrix settled a patent lawsuit brought against them by Judah Klausner, founder of Klausner Technologies and inventor of the handheld electronic organizer. Klausner was highly influential in his work in developing PDA technology. Google, LGE, and Citrix join at least 21 other companies, including Apple and Skype, that have settled patent infringement claims brought by Klausner based on Klausner's Visual Voicemail Technology.

▐ **National Semiconductor
Announces Profit, Layoffs & Closures**

National Semiconductor made money in the third quarter of its fiscal year, but it was about a third less sequentially and year-over-year. Net income was $21.1 million, or about 9 cents per diluted share. That's a 31% drop from the previous quarter and down 36% from a year ago. As a result, the company announced cost-cutting measures, including the immediate layoffs of 850 workers in sales, marketing, manufacturing, support, and product line positions. The semiconductor manufacturer also announced the gradual closure of a wafer manufacturing facility in Arlington, Texas, and a testing and assembly plant in Suzhou, China, affecting about 875 employees.

The Real Costs Of Data Breaches

Concerns That Go Beyond Money

by Robyn Weisman

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DATA BREACHES are costing companies more now than ever before. According to a recent Ponemon Institute report, companies lost an average of $202 per compromised record in 2008. This compares to $197 in 2007, $182 in 2006, and $138 in 2005. The cost of lost business makes up the bulk of the figure: Of the $202, 69% ($139) represents the cost of lost business, up from 65% in 2007.

Mark Bower, director of information security at protection solutions provider Voltage Security (www.voltage.com), says even a medium-sized breach can quickly cost an organization millions of dollars. And the losses an organization can incur through data breaches moreover risk damaging its brand, squandering customer confidence, incurring regulatory fines, and racking up legal fees, among other concerns.

Compliance & Alerts Aren't Enough

Michelle Dickman, CEO at network security solutions provider TriGeo (www.trigeo.com), says that companies often don't realize that data breaches not only lead to lost business but can also put the company's

Confidential Data At Risk

The Ponemon Institute took a national sampling of about 500 IT security practitioners and learned:

81% of respondents reported losing at least one laptop computer containing sensitive information from their companies during the 12 months prior to the survey.

64% of respondents reported they had never conducted an inventory of sensitive computer information at their companies.

24% of respondents reported they were unable to determine what actual sensitive information was on a lost or stolen file server.

62% of respondents reported they were unable to determine what actual sensitive information was on an employee's home computer.

SOURCE: PONEMON INSTITUTE AUGUST 2006 U.S. SURVEY: "CONFIDENTIAL DATA AT RISK"

reputation at risk. "One of the biggest problems we face is when the bean counters—the CFOs—[are only] looking at the budget and saying, 'Get the cheapest thing you can so that we can have a checkbox for compliance purposes,' and a checkbox from a compliance initiative standpoint does not necessarily make your company more secure," she says.

In addition, consumers are incensed that their lives are being inconvenienced and disrupted with continual, usually preventable, data losses, Bower says. "Any business making money off consumer data and not protecting it must be held accountable," Bower says. "We have to go beyond permitting organizations who fail in their duty of care to get away with a fine of basic disclosure and credit monitoring and occasional audits."

Although many technologies aid in protecting an organization's network, too often these tools are only forensic in nature, says Dickman. "Would you buy an antivirus technology that didn't do anything about a virus?" Dickman asks.

She recalls meeting an IT manager of a credit card processing company at a trade show whose network was hacked. According to this manager, the hacker accessed a large amount of credit card information and downloaded this information via the Internet. He found out after the fact through his network technologies and acknowledged it was better than not knowing at all. "But it's a bit like telling a naval vessel [it has] been torpedoed," says Dickman. "It's not terribly helpful."

Crunchy On The Inside

Dickman says that while hardening the outside of a network through firewalls, routers, and IPS devices works to keep most suspicious traffic from entering a network, you cannot realistically stop all suspicious traffic without your network grinding to a halt.

Therefore, you need to make the inside of your network "crunchy," as well, says Dickman. A worm can find its way into a network by latching itself onto things or through open ports and can create havoc before your IPS appliance or antivirus software has analyzed and created a defense mechanism for it.

Worms have the potential to turn a workstation into a mail server or highjack your primary servers. Dickman recommends finding a technology that provides visibility into the goings-on inside your network and can automatically take action should it find something that can lead to a data breach. The latter capability is especially important for SME data protection, given that SMEs are required to abide by the same standards as larger companies despite typically not having the resources that a larger enterprise has.

Analyze Your Data

You next want to analyze your data. Bower recommends dividing your data into three basic categories: green for public information; yellow for internal, sensitive, non-regulated information; and red for sensitive or regulated information. From there, you can determine who in your organization requires access to the various levels for data.

"Each line of business and IT group can answer some simple questions on where

Key Points

- Data breaches can wreck your company's bottom line and kill its reputation.
- Using compliance rules to gauge your data protection policies isn't enough to really protect your information.
- FPE (Format Preserving Encryption) and hardening the inside, as well as the outside, of your network are two key ways to prevent data loss or theft.

such data may be and who requires access to the data on a need-to-know basis. This data asset inventory can then be used to drive a systematic data protection implementation," Bower explains. For example, does a DBA need to see real Social Security number data, or can it be encrypted? If he does need to see the real SSN, can only the last four numbers be exposed and the rest protected?

FPE Breakthroughs

Bower says breakthroughs such as FPE (Format Preserving Encryption) together with stateless key management simplify data encryption while making it harder to crack. Past iterations of encryption and key management required complex operational systems and deep expertise to integrate, especially when dealing with legacy systems.

According to Bower, the advance in technology is evident in the way SSNs are handled. "In using an SSN to conduct business, a whole range of applications will expect to see SSN format data, will expect it to be unique in identifying a customer, and will expect the old nine-digit field when it is printed, displayed, or captured," says Bower. "If I use traditional encryption to protect it, I'm going to get something that's nothing like an SSN, so all those systems expecting nine digits now need to change, even if they don't really need to know the real SSN."

FPE, however, solves this huge problem because it can protect data in place within existing data structures, application fields, and database schemas without sacrificing encryption strength. "FPE can thus be applied to 20- or 30-year-old systems and data, as well as new systems to rapidly solve the data threat problem, both from insider and external threats," Bower explains. ▣

Removing Admin Rights For Users

Retake Control Of Your IT Infrastructure

by Sixto Ortiz Jr.

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IN MANY ORGANIZATIONS, users often require that IT personnel grant them administrator rights to their assigned computers. It may be that they need to run a specialized kind of software, or they carry a laptop and need administrator rights in case they ever need to diagnose a problem

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Key Points

- User administrator rights lie at the root of many Windows vulnerabilities.
- Removing administrator rights can be a tricky proposition, especially if the practice is ingrained in the organization.
- A plan to remove user administrator rights should only be done after extensive planning, analysis, and discussion with management.

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with their computer while out of the office. Or it may simply be a case of system administrators who want to avoid having to drop everything and install software on machines for users who don't have administrator rights.

Although the granting of administrator rights to end users may appear to make life easier for the IT department, the fact

> **Before removing admin rights, enterprises must identify the activities employees need to do to complete jobs that require admin privileges.**
>
> *-BeyondTrust's John Moyer*

is this practice may actually make an organization more susceptible to issues caused by software vulnerabilities. In fact, restricting the granting of administrator rights to very few users can pay big dividends for enterprises that want to protect themselves from vulnerabilities.

Admin Rights: The Root Of Many Vulnerabilities

A recent survey conducted by Beyond-Trust (www.beyondtrust.com), a developer and marketer of least privilege management software, reveals that 92% of critical vulnerabilities reported by Microsoft in 2008 could have been prevented simply by removing administrator rights from Windows users.

Also, the survey points out, removing administrator rights helps companies protect themselves and their computers against 94% of Microsoft Office, 89% of Microsoft Internet Explorer, and 53% of Windows vulnerabilities. Given the prevalence of Microsoft software in today's corporate environment, these numbers should give any administrator pause.

Dave Minker, president of the Boston branch of CMIT Solutions (www.cmit solutions.com), a nationwide provider of managed services and computer consulting services, says if a user is an administrator on her PC and clicks a Web page that loads a virus or Trojan into the machine, that piece of malware now has administrative rights to the desktop, as

well. This is tantamount to ringing the doorbell at the hacker's house and simply handing him the computer.

Remove Admin Rights: No Easy Task

So, how should administrators who want to remove or severely limit administrator rights go about doing so?

John Moyer, BeyondTrust's president and CEO, says before removing admin rights, enterprises must identify the activities employees need to do in order to complete jobs that require admin privileges. Administrators should have a plan in place to address these user needs and also create a pilot group of employees who will no longer log in as administrators.

"This will allow the IT staff to confirm they have put the correct measures in place to ensure that user productivity will not be affected," Moyer says.

Administrators should also be wary of the political ramifications involved with removing admin rights. Minker says simply changing accounts from administrator to power user will most likely cause serious problems, such as applications that don't work properly or lost access to files.

Georgios Mortakis, security consultant manager with Enterprise Risk Management (www.emrisk.com), says "proper analysis should be done prior to stripping rights from users, in order to ensure that the necessary access is granted." In other words, administrators have to ensure that productivity is not affected by the desire—and

vital need—to ensure installed machines are well-protected against vulnerabilities.

A methodical way to accomplish this is to engage in role management, says James Goddard, product manager for identity and access management, IBM Internet Security Systems (www.ibm.com). Goddard says administrators can do either a coarse-grained analysis or a fine-grained analysis to determine the entitlements users currently have to IT resources. A coarse-grained analysis, Goddard adds, simply determines who has access to what system, while a fine-grained analysis goes a step further and not only determines access, but also user permissions on systems such as file access and read/write.

Once this "role-mining" information is in hand, he says, administrators can begin

associating roles with sets of default permissions.

"Once you have established roles," Goddard says, "when you provision access for a user with a similar role, you will ensure you are giving them least privilege."

Pitfalls To Avoid

As administrators move to tighten admin rights within their installed user bases, they should keep a few pitfalls in mind. For example, says BeyondTrust's Moyer, if an enterprise has not properly planned a mechanism to allow users to continue to do the work they need to do, there will be complaints that IT staff will have to spend a lot of time addressing.

Starting too late may prove disastrous. As CMIT's Minker points out, deciding one day that all users need to go from local admins to power users will result in mass chaos. "This needs to be planned, tested, and executed in a very systematic, methodical way so as to maintain the integrity of the environment and make sure you don't break anything in the process," he says.

Bill Horne, a systems architect with William Warren Consulting, says administrators must not neglect to get buy-in from every management level before asking for approval from the top. If this is not done, he says, middle managers may simply bypass the initiative and demand that IT continue to maintain "their" machines.

The Benefits Of No Admin Rights

Removing user administrator rights can rapidly deliver benefits for an organization. For example, administrator rights can be exploited by malware and/or malicious users to alter a standard desktop image, change security settings, or install unauthorized software, Moyer says. Besides that benefit, a 92% mitigation of critical vulnerabilities can deliver the added benefit of a 24% decrease in IT labor costs per desktop (according to a Gartner report), he adds. Finally, Moyer says, operating in a "least privilege environment" is a requirement of many compliance mandates.

Enterprises spend a lot of time and energy protecting their users, systems, and data from the ravages of malware that takes advantage of Windows system vulnerabilities. Administrators who want to reduce their exposure to these vulnerabilities should consider taking a long, hard look at admin rights within their organizations. It may seem IT saves time when users are able to do self-service, but those time savings pale in comparison to the time spent repairing the damage when unwary users do extensive damage to their systems. P

Steps To Successfully Remove Admin Rights

Plan—Planning is critical to a successful effort; administrators should carefully analyze user roles in the organization and ensure productivity is not affected. Ideally, employees must be able to perform their jobs even if rights change.

Test—A necessary piece of the puzzle is extensive testing, especially for homegrown, mission-critical applications that may require administrator rights to run. Can other applications be identified? Can the code be modified? These questions will require answers.

Resource—Administrators and management should ensure resources are available to field user calls after a plan to remove user rights is executed. There will be glitches, and with glitches will come complaints.

Enforce—Policies should be developed to ensure the organization manages user rights properly now and in the future. Those policies should be firm, but they should also be flexible enough to allow for the appropriate management of exceptions.

News

Yahoo! Announces Interest In Potential Deal

Yahoo! revealed recently that although it is not actively pursuing a deal, it would not be opposed to potentially selling its search business if the right deal arose. According to Yahoo!'s Chief Financial Officer Blake Jorgensen, a sale would have to be done for sound economic reasons, given that the company's search business is tightly connected to its other online products and endeavors. Yahoo!'s new CEO Carol Bartz echoes his sentiment, saying that she didn't join the company with the intention of carrying out a search deal, but that "everything is on the table."

Yahoo!'s comments have caused a stir among spectators, who question what will become of the company in the near future. IDC analyst Karsten Weide suggests that the reaction to Yahoo!'s comments has been more dramatic than necessary. "The mere statement that Yahoo! is considering the idea is not much of a story. Business-wise, you always want to be open to anything; you can always explore possibilities," he says, adding that Yahoo!'s comment was really just a "non-statement."

Behind The Buzz

Most of the buzz has originated from the memory of Microsoft's $47.5 billion offer last year to purchase Yahoo! and whether Yahoo!'s recent news will trigger another proposal from Microsoft. "Microsoft has been very candid about the fact that they are still interested in acquiring Yahoo!," Weide says, suggesting that obtaining Yahoo! would make business sense for Microsoft because the acquisition would raise the percentage of its share of the search market by 12%. Currently, Microsoft has a hold of only about 6%. "Acquiring Yahoo! in total makes business sense for Microsoft, because they've got everything

that Microsoft needs to compete better in the online space," Weide says.

But despite the fact that acquiring Yahoo! would be a good business move for Microsoft, Weide suggests that it may not be the best move for Yahoo! "As Yahoo!, you don't want to put search in Microsoft's hands, because you have no idea if Microsoft will perform in terms of search engine technology. You want to have it under your own control."

Weide also points to Bartz and the way she has quickly identified Yahoo!'s operational issues and addressed them with plans for organization, which do not necessarily involve selling Yahoo!'s search business to Microsoft. "It's not like it's the natural thing to happen," he says.

by Kristina Glaser

Wireless Encryption & Security

Top Issues & Technologies To Consider

by Carmi Levy

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DEPLOYING WIRELESS NETWORKS can free employees from the creativity-crushing sameness of a hard-wired desktop computer in a hard-wired cubicle. But cutting the cord opens up a range of security issues that network administrators can't afford to ignore.

Key Points

- WEP should not be deployed. It's too insecure, and its vulnerabilities are well-known and broadly exploited.
- WPA2 with Enterprise extensions offers the tightest protection currently available. Combine with a VPN for even stronger protection.
- Remember human factors. Technology can only go so far. Train end users and enforce secure wireless behaviors.

"Attackers love wireless networks," says Forrester Research Senior Analyst John Kindervag. "They're easier to break into, and they tend to have fewer controls."

A Risk Not Worth Taking

Kindervag says the TJX data breach in 2007, widely viewed as one of the most significant security violations ever, was executed via wireless infrastructure.

"In that case, people weren't looking. Generally, people don't understand how flawed wireless can be," he says. "It is clearly one of the greatest hack vectors, but for whatever reason, there's a lot of complacency around it." This complacency can create significant risk for organizations.

"Security is especially important in Wi-Fi networks because they can extend outside the physical boundaries of a secure building and can potentially open a window into your business systems," says Andy Logan, product marketing manager for Aruba Networks (www.arubanetworks.com).

Understanding that risk is essential in today's networked economy. Tiller Beauchamp, principal security consultant with IOActive (www.ioactive.com), says small enterprises are especially vulnerable.

"Running an unsecured wireless network is like leaving your car unlocked and running while you go to the movies—you are inviting abuse," says Beauchamp. "Using WEP is equivalent to putting a fence around your yard. It will discourage some people, but anyone with enough curiosity will simply hop the fence."

Encryption Is Just Part Of The Story

Wireless security planning often centers around the importance of encryption, or the manner in which traffic is protected from eavesdropping as it moves between wireless components. A number of encryption standards have evolved since wireless networking was first popularized:

- **WEP** (Wired Equivalent Privacy) was the first widely available encryption standard and is also the weakest. It contains a number of inherent weaknesses, all of which have been thoroughly exploited by hackers, prompting it to fall into relative disfavor.
- **WPA** (Wi-Fi Protected Access) replaced WEP and pointed the industry toward the eventual IEEE wireless security standard, 802.11i. WPA, however, still contains a number of weaknesses and is not fully compliant with 802.11i.
- **WPA2** added AES (Advanced Encryption Standard, also known as Rijndael) encryption and includes all of the 802.11i mandatory requirements.

While there's no disputing encryption's importance, Avi Deitcher, CEO at operations consulting company Atomic (www.atomicinc.com), says it's only part of any final solution. Authentication (determining that users actually are who they say they are), authorizing (determining that they are allowed to do what they want to do), and accounting (keeping track of who did what for the purposes of future auditing) are other critical features. Even then, encryption and AAA (authentication, authorizing, and accounting) still aren't the last word on wireless security features and thinking.

"WPA and WPA2 have enterprise extensions that allow for user-by-user authentication and authorization, usually using an external server managed by the organization," says Deitcher. "This allows for much finer-grained control and auditing."

With all of these options to consider, organizations often turn to hybrid solutions. "The most secure organizations that I have seen do both WPA2-Enterprise and require a VPN to connect," says Deitcher. "Essentially, they treat access from the wireless network as insecure as access from the Internet. For many, this may be overkill, but for very sensitive networks, this may make sense."

Why It Matters

Deitcher says organizations must get serious about protecting wireless infrastructure to reduce vulnerability to three primary attack methods:

Data theft. "If you don't protect your wireless network, other parties may gain access to sensitive corporate data," Deitcher says, adding organizations covered by privacy regulations such as HIPAA for health records or PCI DSS for credit card data may face fines or other sanctions if they fail to act.

Denial of service. Deitcher says even if hackers don't succeed in stealing data, they can compromise an organization's ability to operate by denying access to its own networks.

Hijacking. Attackers use your WLAN as a so-called staging area to launch malicious assaults against other networks. "These assaults may be traced back to you," Deitcher says, "and you may be found liable."

Protection begins at the planning stage. Aruba's Logan recommends taking a system-level view of the issue. "Interdependencies between features can affect security and

performance and need to be taken into account during system design," he says. "For example, authentication affects key generation and management, which, if not handled correctly, could enable the type of security breach that authentication is intended to prevent."

Although many organizations have outright banned wireless implementations as a means of protecting themselves, Logan says this is insufficient. "Simply declaring a 'no-wireless' policy is insufficient to protect a company unless an active scanning and enforcement regime is in place," Logan says. "The low cost of commodity Wi-Fi devices makes it simple for an employee to plug an unsecure wireless router into a wired network, bypassing all of the wired network security and creating an unauthorized entrée into the network."

Human factors often trump technological ones in ensuring secure wireless infrastructure.

"The strongest encryption in the world is useless if it's not configured correctly or if the secret keys (or passwords) are stolen," says Joe Levy, CTO of Solera Networks (www.soleranetworks.com). "Presuming the presence of effective antimalware controls such as a unified threat-management solution, the focus shifts to human rather than technology issues. The systems and their controls must be easy enough for people to use or they will be misused or disused."

Forrester's Kindervag says companies deploying wireless networks need to change

> **"Running an unsecured wireless network is like leaving your car unlocked and running while you go to the movies."**
>
> *-IOActive's Tiller Beauchamp*

their thinking. "Many companies don't understand that wireless is not Ethernet," he says. "They treat it like Ethernet, but it's a different protocol. This creates problems because it ends up being poorly deployed in many instances." P

Know Your Wireless Best Practices

Jeff Kalwerisky, chief security evangelist at Alpha Software (www.alphasoftware.com), recommends the following wireless best practices:

- Enforce standards around passwords. "Always use a long, complex password—i.e., at least 12 characters comprising lowercase, uppercase, and numeric characters," says Kalwerisky. "Change the password regularly or after change of any sensitive roles such as network administrator."

- Consider deploying two-factor authentication over a VPN for wireless access to corporate networks

- Monitor and record all wireless access to the system for forensic analysis in case of a break-in

- Do not broadcast the wireless network's SSID (service set identifier)

Maintain Data Security In Tough Times

Most Effective Techniques Don't Require A Big Budget

by Kurt Marko

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THE ECONOMIC NEWS gets worse by the day, and the pain has spread far beyond Wall Street. With companies searching for cost savings, IT budgets are under a microscope. IT managers will be under pressure to cut projects, delay hardware spending, and eliminate administrative processes that are at the core of their mission and anything but boondoggles. Yet being penny-wise and pound-foolish, especially when it comes to data integrity and security, can have disastrous consequences. Most CIOs will empathize with Burton Group VP and Services Director Chris Howard's claim that "By continuing to invest wisely during a downturn, an organization strengthens its long-term future." However, when upper management demands cuts, this is easier said than done. Howard advises a balance: "Within the IT infrastructure, cost can be contained by reducing the number of moving parts and redundancies." He adds, "Reduced spending doesn't mean that IT initiatives must grind to a halt, but it will force a necessary examination of priorities."

Perhaps IT's most important responsibility is data security—a multifaceted task that ranges from providing proper access controls to sensitive information to ensuring that data that's lost, whether by accident or malice, can be recovered. The entire intellectual capital of most companies resides in IT systems, meaning a firm's very survival may hinge on data protection. As Nagraj Seshadri, director of product marketing at Utimaco Safeware (www.utimaco.com), points out, in a down economy, data security becomes more important, not less.

Start With The Four Ps

Prioritizing spending and projects is always important but especially so whenever budgets get tight, says Brian Voves, network and security specialist for CDW (www.cdw.com). He advises IT to focus on activities that are critical to the business vs. the "nice to haves." Information security revolves around what Seshadri terms the four Ps—people, process, policy, and product—which can provide a framework for the prioritization process. Seshadri says a comprehensive enterprise security structure requires all four elements, but many don't require big expenditures.

Employees are often disparaged as the weakest link in IT security, and while there is much truth in the stereotype, Seshadri notes that employee-caused data breaches are often unintentional. Security awareness is a bit like dental hygiene, something that needs to be habitual; thus, end-user refresher courses on the basics of data protection can be a cheap but effective means of maintaining data security. Likewise, IT departments shouldn't skimp on their own planning and training. Alan Brill, senior managing director at Kroll Ontrack (www.krollontrack.com), highlights the importance of having thorough disaster recovery and business continuity plans. He also advises that IT departments plan for a data-loss crisis by contracting with a data recovery specialist. Contingency planning

Five Basic Data Protection Measures

Kroll Ontrack (www.krollontrack.com) recommends the following safeguards to ensure valuable data is not lost and compliance regulations are maintained.

1. **Take a data inventory.** Make a record of deployed desktops, laptops, external drives, and mobile devices. It is important to know where all company data resides for backup practices and to ensure the appropriate devices are accounted for if changes in personnel occur.

2. **Enforce a "save on the network" policy.** Documents critical to the business should all be saved to network shares to ensure regular and sound backups of valuable data.

3. **Image your hard drives.** In case of job loss, it is critical that a forensic image of every employee's hard drive is imaged and stored on disk or archived for knowledge management and regulatory compliance.

4. **Don't forget about saving email.** Email data is often the most important to business information. Consequently, in addition to a forensic image of each hard drive, every employee's mailbox should be backed up and archived.

5. **Use data-wiping utilities.** When computers are recycled or retired, it is critical to deploy an enterprise data-wiping utility after a forensic image and email box copies have been made. Reimaging a drive will not suffice in erasing all the contents because this process does not successfully overwrite the entire drive. Data-wiping utilities are the only way to ensure critical proprietary information does not fall into the wrong hands.

Key Points

- Information security revolves around the four Ps: people, process, policy, and products. Three of these center on strategy, planning, and training; thus, many data-security improvements are feasible on tight budgets.
- Prioritize data-protection measures by evaluating risks associated with various IT services and applications and targeting those most vulnerable.
- Stretching IT budgets by lengthening hardware-replacement cycles means data loss due to hardware failure is more likely. Have data-recovery and continuity plans in place so that the eventual failures don't turn into catastrophes.

Find Your Data

It's impossible to make comprehensive data security plans without knowing where all of the data is. An IT department may be well prepared for a system failure or disk crash in their own data center, but in today's globally outsourced, mobile, and distributed computing environment, critical information may reside everywhere from employee laptops to third-party service providers. Brill advises examining company procurement records for payments to MSPs (managed service providers), outsourcers, or SaaS providers because these can be hidden and obscure repositories for company information. He also says that network monitoring can be an effective way of tracking down external data because it will highlight excessive traffic to external systems.

Prioritize Risk

When developing a data security plan, experts routinely advise IT managers to do risk analysis of their most important systems and applications and prioritize precious budget dollars on those most vulnerable. Voves of CDW notes that such a vulnerability

> **Prioritizing spending and projects is always important but especially so whenever budgets get tight.**

doesn't have to cost a lot, says Brill, yet "it can be the best kind of insurance an organization can buy."

Developing security and data retention policies may sound daunting, but Seshadri notes that there are many how-to guides, documentation templates, and standards available free online via published state regulations and other sources.

Prepare For Hardware Failures

In a budget crunch, there's a natural tendency to let hardware upgrade cycles slip, and while getting some extra mileage out of servers and storage systems is prudent, Brill cautions that every system and component will eventually fail. Although a disk drive's theoretical life span may be years hence, Brill stresses that, "You can't bet the farm on a theory or that you'll be lucky and won't have a problem." In anticipation of a spending freeze, Brill adds that managers may be tempted to quickly blow their entire CAPEX budget on equipment upgrades. However, he advises resisting the urge because it eliminates reserves that could be necessary to replace critical equipment that might fail later in the year.

assessment will often find that email is the system most at risk of losing or leaking data—whether through employees inadvertently storing critical documents in a local, unarchived email file or by inappropriately sending confidential information to outsiders.

Given the centrality of email to enterprise communication and business processes, Voves feels it should be one of the highest priorities in a data-protection strategy. Archiving email stores is a core IT responsibility that can't be sacrificed on the altar of cost savings. However, Voves cautions that email is also a veritable security sieve—the most common conduit for confidential data loss. Despite tight budgets, he recommends IT managers deploy data-loss protection technology to prevent the inadvertent or illicit transfer of sensitive information. He notes that this can be done incrementally, starting with email systems, without breaking the bank.
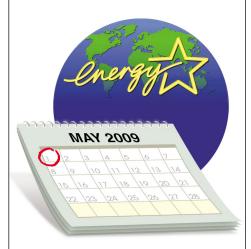
While budget constraints can be wrenching, they needn't be an excuse for shirking data security, particularly when some of the most effective data protection measures are matters of planning and execution, not expenditure. ▪

EPA Announces Date For Energy Star System For Servers

The Environmental Protection Agency announced that the U.S. government's new Energy Star rating system is now scheduled to become effective May 1. The rating system is designed to give organizations a way to compare the energy efficiency of similar servers from various major vendors.

The new specification, which emphasizes efficient power supplies and power management tools, will set energy efficiency standards for servers that have between one and four processors, both at full load and when sitting idle. Energy Star ratings can be attained by servers capable of measuring and reporting power usage, temperature, and processor utilization. These monitoring elements must also be powered on when a server ships.

MAY 2009

The EPA has not gathered all the information it needs to create a plan that is fair to both blade servers and rackmount servers; therefore, blade servers were excluded from the upcoming specification. Blade servers could be added later on, but there are still some challenges facing the EPA at this time.

Additionally, the new specification will not require vendors to put labels on the servers themselves out of concern that it could affect the thermal performance or mechanical fit of servers in the racks. Instead, vendors will be able to add a link to their Web sites that will provide potential customers details of the servers' energy information.

The specification will be released in tiers. Tier 1 will be less comprehensive than Tier 2, which is slated to be implemented by Oct. 1, 2010, and will cover both energy efficiency and computing performance.

Environmentally Friendly & Efficient Servers

According to an EPA report, the Energy Star for Servers specification is designed to help organizations tackle energy and environmental challenges. Although the Energy Star for Servers initiative has been in the works for years, the EPA has just now found a way to outline real and identifiable energy and cost savings for organizations.

The idea behind Energy Star for Servers is to let buyers quickly and easily find servers that are engineered specifically to perform at a high level while also reducing energy consumption. Additionally, the EPA has been focused on gaining transparency of information in regard to the power use and capability of servers, as well as better manageability through better technology inside the systems.

by Tessa Warner Breneman

News

Study: More High-Tech Worker Immigrants Leaving United States

A two-year study by the Kauffman Foundation found that many high-tech worker immigrants contributed greatly to the U.S. economy by cofounding a quarter of tech and engineering startups, such as those at Intel, Google, and eBay, between 1995 and 2005. However, a dramatic shift has occurred in the past few years as many of these immigrants return to their native countries after obtaining degrees, now contributing to their home economies. Authors of the study urge the United States to work harder to keep its highly skilled immigrants within its borders as the global environment becomes more competitive and as the U.S. economy faces more challenges. For more on this issue, see page 9.

Blade Server Shipments Up

Revenue from blade servers was up about 31%, and shipments were up 30% during the fourth quarter of last year, according to the latest information from Gartner. HP led the way, accounting for about 47% of the blade server market, followed by IBM with 26%. Despite the good news in the blade market, when compared to year-ago figures, overall worldwide server revenue fell 15.1% during the fourth quarter, with shipments dropping 11.7%. Server revenue dropped most in the Europe, Middle East, and Africa regions, where revenues were down 20.6% year-over-year. North American revenues were down 14.6%. The leading server vendors in terms of revenue were IBM with $4.83 billion, HP at $3.93 billion, and Dell with $1.4 billion.

Gartner: 7.5% Lose Money To Financial Fraud In 2008

About 7.5% of adult Americans lost money from financial fraud last year, with data breaches mainly to blame, according to a Gartner survey. Of the 5,000 people surveyed, 21% say their credit or debit card information was used fraudulently, 6% discovered accounts opened in their name, 5% had money transferred from their account, and 4% were victims of forged checks. Leading causes of fraud included data breaches (reported by 19% of victims), theft (16%), and online scams (13%). Less than a third of victims reported the fraud to authorities, and about 5% informed the Federal Trade Commission. About 70% of respondents hadn't experienced identity-theft-related financial fraud.

The Rise & Fall Of Raised Flooring

Biggest Factors: Cost & Space

by Chris A. MacKinnon

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TODAY, MANY DATA CENTERS use raised floors to carry cables, electrical wiring, and cooling equipment. However, more data centers are being built without them. Why is the industry turning away from this concept? And, is this a trend or a fad? Here, we'll discuss the advantages and disadvantages of using raised floors in the data center and tell you why some data centers are seeking other design concepts.

Going Down

Steve Hambruch, data center architect at Data Center Resources (www.data centerresources.com), says while raised floors have been the mainstay in data centers for a few decades, their use is declining in new data center build-outs. He explains, "This decline is mainly due to the maturation of the rackmount server as the de facto standard computing platform. Power densities associated with blade servers and high-density server racks have pushed the raised floor plenum to the edge of its capabilities in many data centers. The overuse of the raised floor as a cable-management device has also limited its cooling effectiveness."

Hambruch says data center managers who are engaging in significant renovations of existing facilities or designing new green field facilities are realizing that greater efficiency and optimization can sometimes be obtained by abandoning perimeter-based, room-level cooling in favor of localized cooling at the row level. He adds, "This approach, often accompanied by hot-aisle or cold-aisle containment, offers significantly increased cooling efficiency in many environments and also more optimal cable management through overhead cable-management devices. However, these performance or efficiency gains are not universally applicable to all designs."

Steve Yellen, vice president of product and market strategy at Aperture (www.aperture.com), says we are hearing more about the raised floor issue for two reasons: cost and cooling. Yellen comments, "Raised floors can be more expensive. Of course, that always has been the case, but raised floors became the preferred approach because they facilitated the delivery of cool air throughout the data center. But high-density IT environments require even more cooling, forcing data center and IT managers to move to precision cooling in the row or in the rack. If the raised floor isn't used for delivering cool air, it isn't necessary."

In Or Out?

Will raised floors eventually disappear? According to Hambruch, they're not going away anytime soon; he says the move to other solutions is a trend. He notes, "Data center managers and designers have begun to migrate from the 'that is how we have always done it' mentality and started looking at innovative alternatives to the typical perimeter-cooled raised-floor environment. I think this trend has resulted from an increased focus on energy costs, ROI, and PUE (power usage effectiveness) industry-wide. Having said that, there are still plenty of environments where traditional raised floor installations are still the most effective solution."

Robert Neave, CTO of GDCM (Global DataCenter Management; www.gdcm.com), says that this is not a new trend, either. "This trend is one more solution in the increasing toolbox for data center designers; the data center design space is continually evolving as equipment requirements change in these complex environments, and designers are under increased pressures to find solutions that will meet business demands for the life of the data center," he says.

Pros & Cons

Can data centers expect to save costs by removing raised floors? Neave says yes and no. "Some designers will argue," he says, "that by removing the plenum, you eliminate the expense of heavy plant equipment to cool the data center and the costs of under-floor maintenance, while other designers will argue that you have just moved the maintenance pains and cost to above the floor or rack." Neave says the cost savings for data center design are a difficult juggling act of what is "in" and "out" of scope and is always limited by the capacity information provided at design time.

In Yellen's opinion, you can definitely save costs in new data centers, but there really aren't any significant savings to be achieved by transitioning from raised floor to slab in an existing facility. He says the decision to redesign a data center and switch from raised floor to slab would have more to do with maximizing available space. In terms of the easiest solution for running cables, Yellen says that is largely a personal preference. He notes, "I know some data center managers believe that cables mounted along the ceiling are more accessible. Others believe the inconvenience of using a step ladder makes under-floor cabling a better choice."

Hambruch, on the other hand, says under-floor cable management hinders cooling effectiveness for the critical equipment. Also, under-floor cable management tends to invite greater cable abandonment issues over time. The cabling falls into the "out of sight, out of mind" trap. Overhead cable management typically presents less of a disruption to the delivery of cooled air to the critical equipment, and the visibility of the cabling system aids in identifying and rectifying cable-management challenges, such as cable abandonment.

The key advantages to not using a raised floor, Yellen says, are the lower cost of construction and more available space. "A slab is more stable," Yellen says, "which is important in locations prone to earthquakes, and also easier to keep clean and relatively dust-free. In terms of disadvantages, the common concern is accessibility of cables mounted overhead and the inconvenience of using a step ladder."

Neave says there are advantages and disadvantages to both approaches. He elaborates, "Very few data centers we build from the ground up are standard rooms that have been repurposed for data center support. If these rooms have high ceilings, it can be very expensive to get the overhead cooling close enough to the tops of the cabinets to effectively cool the equipment. In these cases, a raised floor approach might be the better choice. The raised floor can be a very expensive proposition in large data centers."

Hambruch concludes, "It is generally not as effective for rooms that support heterogeneous platforms including large storage appliances, mainframe equipment, and other equipment that is designed to work in a raised floor environment." P

Key Points

- Raised floors have been around for a few decades, but their use is declining in new data center build-outs. This is mainly due to the maturation of the rackmount server as the de facto standard computing platform.
- You can cut costs if you don't install a raised floor in a new data center, but there really aren't any significant savings to be achieved by transitioning from raised floor to slab in an existing facility.
- The key advantages to not using a raised floor are the lower cost of construction and more available space.

> "Very few data centers we build from the ground up are standard rooms that have been repurposed for data center support."
>
> *- Global DataCenter Management's Robert Neave*

The Crystal Ball

According to Rick Driscoll, owner of Computer Structures (www.computerstructures.com), raised floors will have a purpose well into the future. "What is a data facility, really? It is a controlled room to operate IT equipment," says Driscoll. "Technology is advancing in such a way that data centers require less physical human presence. It won't be too long until nobody ('no body') goes into the data center at all. Not even to install, service, or replace equipment," he says.

Driscoll says the data center of the future will be designed not unlike an automated factory floor. So, a raised floor, he says, may still make sense in certain circumstances. He adds, "This will be dictated not by the challenges we, as people, encounter when installing or working on IT equipment. It will be dictated by the application of a holistic design and may not closely resemble what we know today as a raised floor."

Treat Your IP Network Like A Submarine

Compartmentalize Cracks, Keep Damage From Spreading

by Curt Harler

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THE PROLIFERATION OF IP-enabled devices tied to networks is a serious enterprise security threat. They create problems such as unmanaged connectivity into and out of the network; improperly configured nodes, which can expose the network to intrusion; and network leaks.

IP-enabled devices are versatile and functional. They extend the advantages of

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Key Points

- IP-enabled devices are versatile and functional, but they also introduce risk into the network infrastructure.
- To defend against IP security threats, compartmentalize sensitive information and place key assets deep within the security system.
- Use commercial-grade equipment and make sure you are using the right switches and software to manage your network.

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an IP network to business functions traditionally served by analog devices. But in doing so, they introduce risk into the network infrastructure, because they must now be treated like any other device on the network with respect to security and compliance protocols.

The threats can come from anywhere: an Internet-enabled postage unit, a stamping machine with an IP port. "Every time a new device comes into the office, someone

> ## "A key point is that security issues stem just as often from authorized devices like removable hard drives as unauthorized devices like rogue WLAN access points."
>
> *-SafeNet's Bill Becker*

should ask, 'Does it connect to the Internet?'" says Michael Markulec, COO at Lumeta (www.lumeta.com). "If it is IP-enabled, if it has an IP address, it must be treated as a threat."

Identify & Categorize Sensitive Data

One solution, experts agree, is to treat your network like a submarine. Compartmentalize everything, so if one area is threatened, the others will survive.

"Do not put your administration on a network guests will be using," advises Mark Probst, CEO and chairman of Atlanta-based CLC Networks (www.clcnetworks.com). "Keep internal admin on a separate network, not a public-facing one." CLC specializes in installation of converged network solutions, including IP voice, IP security, and streaming media.

"The fear is that outsiders can download your internal information. These are real issues and great concerns," Probst says.

"These are valid fears," agrees Bill Becker, senior advisory architect in the Office of the CTO at SafeNet (www.safe

net-inc.com). "The days of having to protect only a few entry and exit points on the network are gone. Whether it is the physical connection of a rogue wireless access point to the network or the remote connection of a smartphone, there are a number of methods for sensitive data to leave your network and for malware to enter the enterprise."

Becker recommends SMEs expand the traditional perimeter-centric, device-centric view of data security to a holistic view focused on identifying sensitive data, categorizing it, and protecting it throughout its life cycle.

"A first step is to go through a sensitive data discovery process," Becker says. "Honestly, today [enterprises] can assume they have a problem . . . every corporate network has unauthorized devices connected to it."

"Organizations must have visibility into everything that is on the network in order to ensure its health and security," says Markulec. He notes that it still is important to follow proper procedures with respect to every device on any SME's network.

Steps For A Secure Network

Markulec outlines three steps to take in defending the network. First, he says, know what is on the network and where everything is. This requires discovering or mapping the network to determine which devices have network access.

"The foremost step is to have a good understanding of the network, whether

it's several hundred seats or thousands," Markulec says. "Keep in mind that it's not just laptops, servers, and routers. It's the card reader you scan when you enter the office, the surveillance cameras in the hall. Any device that generates traffic is susceptible to viruses and worms."

Second, know the risk. Even process-control devices are at risk—and perhaps they are more a danger to corporate security than other computers.

"Defense in depth" is the third key concept. Once a risk assessment has identified

vital processes, defense in depth puts key assets deep into the security system. "You don't want a core asset to be one step from the Internet," Markulec says. But SMEs often allow vital IT assets to sit right out in public view.

Probst says firms should consider completely separate circuits to guarantee safety and to manage the larger diversity of protocols that are likely on the internal network. In most cases, the internal network will be hard-wired. The public-facing network may be wireless. It's the wireless networks that keep Probst up at night.

Becker points to rogue WLAN access points, USB memory sticks, and smartphones as other notable examples of security risks. "But a key point is that security issues stem just as often from authorized devices like removable hard drives as unauthorized devices like rogue WLAN access points," he says. "Taking a data-centric approach to protection enables an enterprise to address both issues and to focus their security spend on their most valuable assets . . . sensitive information."

Don't assume guests or visitors using the network are benign, either. "People today are network-savvy," Becker says. "You could have a rogue person on your parking lot, and you don't want to have your internal network open to him."

Beyond separating the guest access from any internal network, Probst recommends having each department or division on separate networks. SSIDs should ride on the wireless access points. This allows IT to check who is using what and when they are doing so.

Even vendors are not suspicion-free. "Many machines are manufactured overseas. You don't know who wrote the software and perhaps left a back door," Markulec says.

Choosing The Right Equipment

Probst says one common pitfall for SMEs is using the wrong equipment. "A big problem is using residential-grade equipment, not commercial," he says.

Probst recommends working with a commercial integrator who will bring together all the vendors with their VoIP solution, video on demand, IP security cameras, and the like. "Sit them down and make sure you have the right switches and the right software to manage the network," Probst says. "A HP switch can handle the protocols and will have enough ports. A home switching device will not."

Firewalls are standard on any network. "If you have workers with laptops, they should access through a VPN (virtual private network) and you can authenticate them," he says.

Protect Your Home Turf

In addition to protecting office systems, IT managers are well-served to protect their home turf. In an age when cell phones can pay for purchases at soda machines and TV sets are Internet-enabled, there are many personal devices that are exposed to IP security risks.

"The size of the organization does not matter—whether it's the Department of Defense network or your home network," says Michael Markulec, COO at Lumeta (www.lumeta.com). Most homes have several computers, laptops, video game consoles, a server or a wireless network,

and other IP-enabled devices.

"With all of this interconnectivity, it is key to know where everything is. It's not just Microsoft devices. It's anything that has an IP address."

Save Money With Recycled Media

Storage Media Brokers Buys, Recertifies & Resells Tape Media

by Daniel P. Dern

FOUNDED IN 2005, Data Storage Media buys and resells used tape media through its two subsidiaries, Storage Media Brokers and Recycle Your Media.

Storage Media Brokers (888/757-8273; www.storagemediabrokers.com) provides tape cartridges and other tape media to customers including Fortune 500 companies, small to midsized enterprises, and branch offices. "Typical users are corporate clients using enterprise media like tape libraries and companies with open systems using media like LTO 8mm tapes," says Vice President of Sales Brian Musil, who has been with the company since it started.

Recycle Your Media, the other half of Data Storage Media, buys tape drives, tape libraries, and tape media. "The ones that can be reused have any data scrubbed off them and are then reconditioned and tested," says Musil. "And we recycle or otherwise responsibly dispose of whatever can't be reused."

■ What are the biggest IT-related issues facing today's small to midsized enterprise?

"Trying to conserve budget and cut costs without sacrificing quality or reliability" is a serious issue for SMEs, says Musil.

Although consumables such as tapes may seem at first to be too small a budget item to make a difference, new tapes can cost up to $100 apiece, Musil notes. A medium-sized company can need hundreds of fresh tapes each year, "and some companies go through thousands of tapes a year. So tape media is still a major budget cost."

Similarly, when a company is done using a tape due to migration or reaching the end of a tape's retention period, for example, it normally becomes an expense liability because of the cost to eradicate data and then dispose of the physical tape. "To recycle tapes to landfill typically costs about $3 a pound," says Musil.

■ What should *Processor* readers know about your company's products?

Storage Media Brokers buys and sells data storage media, focusing on new and certified data backup tapes. Products include DLT, LTO, AIT, AME, 9840, and 3590 tape media. The company's Eco-Stor brand features certified-for-reuse tape media with the same quality as newer, more expensive brand-name data tapes.

The opportunity to get certified-for-reuse tapes for 20 to 50% less can save anywhere from $10,000 to $30,000 per 1,000 tapes, Musil says, adding, "If your company uses tapes, this is worth pursuing."

For the used tapes it buys, "We fully eradicate what was on it," says Musil. "We promise the seller that data will never be retrieved by a third party. We test every tape and make sure it works."

STORAGE MEDIA BROKERS™
YOUR BEST SOURCE FOR DATA STORAGE MEDIA

Once tape cartridges have gone through Storage Media Brokers' certification process, they are relabeled with the company's trademarked brand name, Eco-Stor. "We like to compare our Eco-Stor tapes to 'like-new tapes,'" says Musil.

Additionally, to help prospective customers become familiar with Storage Media Brokers' products, "we try to get samples into their hands the next day after we get a request."

■ What makes your company unique?

"We're standardizing the processes in how we separate, test, and inspect tapes," says Musil. "And we emulate the packaging, without infringing on trademarks, so the look and feel is just right."

Also, Musil points out, it's important to know that the quality of reusable media has been thoroughly verified. "There are many other companies that market their products as recertified, reconditioned, refurbished, etc. We test every tape—we don't do just batch testing. We have a 12-step handling and 12-point inspection process for our Eco-Stor tapes. They are cleaned, fully erased, carefully examined, repackaged, and clearly identified as tapes that have been certified for resale." ⓟ

Texas Company Racks Up The Options

ISC Markets Rackmount Hardware & Furniture Solutions To A Wide Audience

by Joseph Pasquini

MANSFIELD, TEXAS,-BASED Information Support Concepts provides hardware and furniture solutions designed for use in environments ranging from networking and telecom applications to corporate training rooms and school computer classrooms. In addition to selling directly to its customers, ISC markets through value-added resellers.

Jack Burlin, product manager at ISC (817/842-9090; www.iscdfw.com), holds an MBA in international management and is responsible for vendor management, sales support, pricing strategy, and new product development. Burlin, who is also an accomplished author, previously served as a pilot and an operations staff officer in the United States Air Force.

■ What are the biggest IT-related issues facing today's small to midsized enterprise?

According to Burlin, SMEs must continue to grapple with reducing costs while maximizing efficiencies. "These issues have not changed in the last few years," says Burlin, who adds that energy costs remain a fundamental, yet addressable, concern. "Power and cooling are always the biggest challenges. Although smaller organizations pay a lower percentage of their total budgets towards operating and cooling their data processing equipment, it is still an excellent area to extract savings if you are willing to do the legwork necessary to optimize your system."

To determine the savings potential, Burlin suggests that SMEs conduct an energy audit of the data center operations. "Matching the cooling to the load is helpful, as is allowing equipment to operate at the higher end of its normal range as opposed to striving to always be at the lower end of the range," says Burlin. "Using products such as ours to help with convective cooling, fan controls, and power monitoring and management can also help."

Environmental concerns also play a role in the desire to reduce energy expenditures. "Environmentalism ('greening') puts added pressure on companies to get on board with the latest techniques for saving energy," adds Burlin.

■ What should *Processor* readers know about your company's products?

ISC's product portfolio is classified by the company into three general categories: server racks and cabinets, computer racks and cabinets, and accessories.

One of ISC's most recent products is the open-frame 4-Post Expandable Rack. The 4-Post Expandable Rack is a heavy-duty,

ISC Information Support Concepts, INC

adjustable rack that can be expanded or compacted to fit diverse locations and sizes of equipment. The rack's expandability is provided by horizontal frames that can adjust between 26 and 42 inches as needed, without modifying the rack's structure or purchasing additional pieces. "It's more adjustable than other racks," says Burlin, who notes that it is also available in 19- and 23-inch widths and 40U, 44U, and 48U heights.

"Our products appeal to a broad cross section of SME [and] SOHO clients,"

explains Burlin. "For larger clients or those with custom requirements, we have a large number of resources we can use to help get the right product designed and built."

ISC also offers a variety of rackmount accessories such as monitor/keyboard drawers, power distribution units, uninterruptible power supplies, KVM switches, command consoles, fan controls, and shelving.

■ What makes your company unique?

"The knowledge and expertise we have ensures that our clients get the best product for their particular application," says Burlin. "We strive to provide the right cabinet, not just any particular manufacturer's cabinet. The same is true for any of our many accessories."

"Customers unfamiliar with our industry also get an explanation of why a product is right for them and how they can

> **Environmental concerns play a role in the desire to reduce energy expenditures.**

make optimal use of it," adds Burlin. ISC educates users via the Web, too. "We also support a separate Web site (www.askrackmountranger.com) where many client questions are posted along with helpful answers." ⓟ

BOOK 📖 REVIEW

Green & Virtual

Book Explores Developments In Facilities, Servers, Storage & More

by Kurt Marko

• • •

A NEW "GREEN REVOLUTION," fueled by fears of human-caused climate change, is bringing about a new era of technology development. Given IT's increasing share of power consumption, data centers will be a central front in the battle for greater energy efficiency and sustainability.

In his new book, "The Green and Virtual Data Center," Greg Schulz writes, "Green washing and green hype may fade away, but PCFE (Power, Cooling, Floor space, and Environment) and related issues will not, so addressing them is essential to IT, business growth, and economic sustainment in an environmentally friendly manner."

The book reviews the latest developments in facilities, server, storage, networking, and monitoring technologies and provides a roadmap of how each can be used to create next-generation data centers that combine efficiency with scalability.
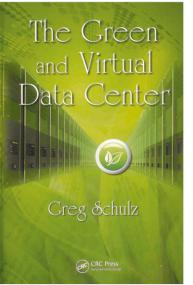
Problems Facing Data Centers

Schulz contends that public and media concern over climate change and other environmental problems, which have fueled interest in green products and technologies, coincides with separate but related problems facing data centers: increasing power and cooling demands. Unsustainable growth in power usage was challenging IT managers long before it became a green issue, but now the two have become linked. "Green IT" has become the label for strategies to increase data center efficiency.

The book discusses the myriad ways IT can enhance efficiency, but as the title indicates, virtualization is a key technology enabling this new generation of data center. Yet virtualization alone isn't sufficient. "Server or storage consolidation in general reduces the number of physical units to be managed, but server and storage virtualization in their current forms do not help to aggregate or consolidate the number of operating systems or application instances," Schulz says.

As Schulz uses the term, virtualization implies much more than merely running a handful of VMs on a new server. "A virtual data center can, and should, be thought of

"The Green and Virtual Data Center"

Author: Greg Schulz

Publisher: CRC/Auerbach Publications—Taylor & Francis Group

Price: $79.95

Format: Hardcover, 376 pages

as an information factory that needs to run 24x7, 365 days a year." Schulz contends that data centers are key corporate assets, not cost centers.

Implementing a virtualized information factory requires breaking down traditional IT silos between hardware and applications groups; server, storage, and networking teams; and even data center and facilities management. Schulz believes a formalized IRM (infrastructure resource management) program can bridge these functional and technology gaps. Another important component of next-generation data centers is comprehensive measurement of IT resource usage and performance, with defined metrics to assess ongoing health and project future needs.

Future Information Factories

Schulz not only lays out a compelling vision for future information factories, but also provides ample background material on their supporting technologies, including power, cooling, servers, storage, and networking. Schulz writes for two audiences in combining the big-picture strategic view with a nuts-and-bolts engineering text. Thus, it's probably better to read "The Green and Virtual Data Center" as a handbook or reference guide rather than a linear text and start with the detailed table of contents to find specific areas of interest.

Economic and environmental megatrends have converged to make efficiency and frugality the most important of IT virtues. Schulz's book provides an excellent primer for those wanting to understand how to create data centers for this new paradigm. ▪

KEY CONCEPTS

▶ Enterprise data centers are faced with various power, cooling, floor space, and associated environmental health and safety issues that affect their ability to grow without disrupting or reducing quality of service.

▶ Green technologies actually address real-life limits and constraints on data center power, cooling, and floor space, not just abstract environmental goals.

▶ The overriding goal of next-generation data centers is to manage more data and IT resources in a smaller footprint.

▶ "Green" is often a buzzword used by marketers to sell products, but green objectives of greater efficiency are complementary to the goal of extending enterprise IT budgets.

OPINIONS
INFO-TECH • INSIGHT

Layoffs:
Shake The Denial

First, an unpleasant truism: The economy is tanking, with no sure end in sight. Accompanying this downward spiral is a corresponding frenzy of activity as enterprises and their IT departments look for ways to reduce costs. However, there's a Technicolor elephant in the room that many are purposefully ignoring, and its name is Layoffs.

Pain Avoidance Drives Behavior

Staffing costs typically comprise 70% or more of an IT department's budget. Reducing these costs is a surefire and often necessary way of saving money. One would think staffing costs would be a clear target for cost management efforts. Not so. While the low-hanging fruit of discretionary spending cuts is very popular and projects to consolidate and virtualize servers are full steam ahead, staff reductions are being given a wide berth.

Why? The answer is simple: pain.

Having to look an employee in the eye and tell him he no longer has a job is steeped in negative emotion. Human beings go out of their way to avoid the sadness, loss, and conflict that are the hallmarks of layoff action. Layoffs are a last resort simply because they hurt. In fact, many enterprises pride themselves on never having laid off a single employee. Although this humanitarian approach is commendable, some organizations do so at their peril if implications and alternatives aren't played out.

Staffing Deserves A Serious Look

A recent Info-Tech survey found that the majority of IT budgets are currently facing cuts in the range of 5 to 10%. For many, these cost reduction targets are the first of several to be tackled in the months ahead. In

JENNIFER PERRIER-KNOX

AUTHOR

Jennifer Perrier-Knox is a senior research analyst specializing in IT human resources and policy management. In her 10 years with Info-Tech Research Group, Perrier-Knox has also gained extensive hands-on experience in professional team management, Web publishing, content management, and product lifecycle management as a former product manager with the company.

fact, the number of IT departments looking at longer-term cuts in the 30% range or greater is growing each day. Reductions of this magnitude cut through bone and muscle alike.

If the future existence of the enterprise is at stake, then staff reductions have to happen to achieve and sustain expanding cost reduction targets. There is no other way.

Too often, however, layoff action is forced upon IT leaders suddenly. Usually, this is because senior management has denied the gravity of the economic situation, turning a blind eye until the need to act is both critical and urgent. The result is haphazard layoffs that leave the enterprise short on key skills required to advance the organization's strategic shortlist. Mistakes are made. Damage is done.

Instead, layoffs must be carried out in a considered and deliberate manner, even if time frames are tight. Even if layoffs are not imminent, an executable contingency plan should be in place if and when the time comes to avoid missteps. An objective, skill-based method for determining who stays and who goes ensures fairness to employees and limits the enterprise's risk.

Priorities Are Your Compass

If layoffs are indeed announced, the lack of a clear mechanism for decision-making adds the additional negatives of doubt and arbitrariness to an already horrid situation. Don't go there—remember, even though it's your job to make these decisions, you still have to live with them as a person.

First, IT leaders need to know what projects are considered most important for achieving the enterprise's strategic goals. This prioritized list, along with essential maintenance work, serves as the decision-making compass.

Next, the skills and associated full-time staff equivalents to make these projects and tasks happen must be inventoried. This step highlights redundancies and gaps and separates the "must have" from the "nice to have." Unfortunately, those employees with "nice to have" or commodity skills are all on the chopping block.

Layoff Alternatives

If keeping people employed is a moral and ethical position chosen by the enterprise, then alternatives to staffing cost reduction must be explored. These include reducing work hours or reducing salaries and wages. More enterprises are adopting these strategies, and the "feel-good" quotient is definitely higher than showing someone the door.

However, taking these measures sends a message that the downturn is temporary and "business as usual" will recommence in no time. If the enterprise isn't confident in this message, then tread carefully—reducing salaries followed by layoffs a few months down the road inflicts double damage on morale for those left behind.

Letting people go is the worst part of an IT leader's job. However, don't live in denial—avoiding the truth and driving it underground will be even more painful and damaging for everyone involved. Consider layoff alternatives, yet ensure you have a clear framework for deciding who has to go if and when the time comes. When it comes to reducing staffing costs, the bottom line is be kind but also realistic and deliberate. P

Send your comments to infotech@processor.com

Featured Company

RAID Is The Answer

Accordance Systems Offers SMEs Efficient Data Backups Through RAID Arrays

by Holly Dolezalek

• • •

THESE DAYS, A COMPANY'S DATA is its life, whether it's on individual PCs or on servers. Fear of a hard drive failure is what keeps a lot of backup and recovery companies in business, whether they provide backup software or tape drives and storage systems. But Accordance Systems approaches hard drive failure prevention in a different way: with RAID.

RAID is a method of data protection that captures all data, not just the data that was captured in the last backup. It constantly writes the same data to a backup disk as is being written to the hard drive so that the data on the backup is a mirror image of what's on the hard drive. RAID arrays can be internal or external, and they can be installed in an extra bay in a PC, integrated into the motherboard, or attached to a server.

Accordance Systems (515/223-4845; www.accordancesystems.com) has eight storage controllers available, each of which is distinguished by the type of port it has (IDE, SATA, or both) and the type of host interface it uses (IDE, SATA, USB, 1394, or eSATA). Each is mounted in removable, hot-swappable trays, and each stores the same data as is being stored in the computer's hard drive.

"For anyone who wants to protect data on their hard disk, this is the simplest way to do that," says Accordance President and CEO Steve Johnson. "There are other strategies to protect data, and most of them do it through software. We do it with hardware, which means that users don't have to worry about device drives, middleware, or any software to support a RAID."

Doing Business

Accordance Systems is a privately owned joint venture between Taiwan-based Accordance Systems, Inc., which was founded in 1998, and Accordance USA in Des Moines, Iowa, which was founded in 2004 by a group of embedded computing specialists. "Many of us came from Microware Systems Corporation, and we have a wealth of experience with systems and technology that have been in thousands of systems worldwide," says Johnson. "Now we're applying that knowledge to data protection with RAID storage."

Accordance Systems' products are in the hands of customers all over the world. The company does a lot of sales through its online store, but most of its sales come through its reseller network in the United States and from direct sales to OEMs. The

Taiwan side of the company also has a strong presence in Asia and Europe.

"Our products sell well in the small to medium-sized business market, including some companies that integrate our RAIDs into standard PCs," Johnson says. "A lot of our customers are industrial companies that need the security and protection of writing the backup to a hard disk, and that includes manufacturers, automotive companies, research companies (such as SAIC [Science Applications International Corporation]), and military entities." Manufacturers in particular, he notes, are vulnerable to drive failures because their factory automation, transaction processing, logistics, and other production systems are computer-controlled.

"Our manufacturing customers use Accordance RAIDs to prevent downtime, which for them can mean tens or hundreds of thousands of dollars for every hour they're down," he says.

RAID Features

Accordance's RAID arrays connect to the motherboard via IDE, SATA, USB, or eSATA ports. The system's hard drive goes into the top tray, and the blank drive goes into the bottom tray. As the system hard drive is updated, the blank drive is, as well,

and if the hard drive crashes, the backup drive continues to run. LED indicators show the disk read and write status, and the device sounds an audible alarm if it detects impending drive or cooling failure. The RAID can also send an email alert or use an SNMP trap to alert the user to a drive failure. "With our removable trays, users can pull out the bad drive and replace it without ever shutting down the system," Johnson says. "We have a lot of customers who rotate disk drives the way other companies rotate tapes so that they've always got an archive of their data offsite in case of fire or flood or other disasters."

When one disk is hot-swapped out for another, the system automatically begins copying data to the new disk at 1GB per minute. Also available are models that connect directly to the server.

For internal RAID arrays, the price ranges from $370 to $390. External RAIDs, which connect to a LAN instead of a drive port, are $475 to $495.

Accordance Systems' products are all RAID 0 or RAID 1 systems. RAID 0 means that the data from one hard drive is distributed onto several backup drives, while RAID 1 means that one backup drive mirrors one hard drive. But Accordance Systems' future is going to include other types of RAID arrays. "We are looking at RAID 5 technology," Johnson says. "It's a potential growth path that makes the most sense for us, and it would put us into more than the small to medium-size market. For example, EMC offers RAID 5 product lines." Johnson says that the RAID 5 offerings may come as soon as this year.

Accordance's Place In The Market

The company's competition is a mixed bag. Many PCs come packaged with RAID already on the motherboard, but the software to run it has to be added and configured. There are also other companies that provide similar devices to those of Accordance, but Johnson says Accordance sets itself apart by providing devices that require no software installation whatsoever.

Accordance competes with tape providers, as well, and Johnson says that one

The ARAID 2200 has a 3.5-inch SATA drive and host interface, as well as USB and eSATA input and output.

of the company's biggest challenges is educating the marketplace that there is an alternative to tape. Many customers in the small to medium-sized enterprise market aren't aware of what RAID's advantages might be over the tape backup systems they've used for years.

"It's just a different type of discipline when it comes to data protection," Johnson explains. "The cost is comparable, except that tapes are a lot of work to back up and restore a PC or server. With RAID, if your drive crashes, you don't have to do anything to keep going. Tape, on the other hand, means that your computer is down and you have to rebuild it from backup. That's a lot of work."

Johnson says that the prices for Accordance's products aren't hard to justify, either. Compared to a major data loss or significant amount of downtime, customers in Accordance's market tend to respond well to the concept of RAID, not just because it's simpler but also because it's a reasonable price compared to lost data. "There are companies that lose their data and go out of business as a result," he says. "Expense is almost always relative compared to a data loss."
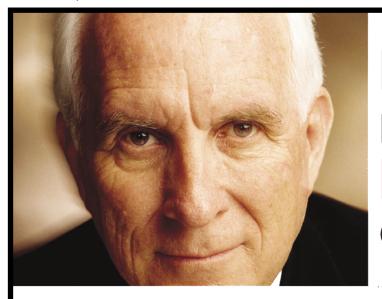
> ### Accordance's RAID arrays connect to the motherboard via a variety of interfaces.

Accordance Systems Products

ARAID 1000L	Internal unit with 3.5-inch IDE drive and host interface	$370
ARAID M100	Internal unit with 2.5-inch IDE drive and host interface	$380
ARAID M200	Internal unit with 2.5-inch SATA drive and host interface	$390
ARAID 2000	Internal unit with 3.5-inch SATA drive and host interface	$390
ARAID 2200	Internal unit with 3.5-inch SATA drive and host interface, also USB and eSATA input/output	$395
ARAID T-1000L	External unit with 3.5-inch IDE drive and USB, 1394, or IDE host interface	$475
ARAID T-2000	External unit with 3.5-inch SATA drive and USB, 1394, or SATA host interface	$495
ARAID T-2200	External unit with 3.5-inch SATA drive and USB or eSATA host interface	$495

The ARAID M200 is an internal RAID unit with a 2.5-inch SATA drive and host interface.

Processor Advertiser Directory

The following pages provided a brief snapshot of *Processor* advertisers and the products they offer.

Ads are sorted by category, making it easy for you to find advertisers offering the products and services you need.

For more detailed information on these advertisers and the products they offer, look for their ads inside this issue.

To list your company and products, call (800) 247-4880.

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AVTECH Software, founded in 1988, is a computer software and hardware manufacturer focused on making the monitoring and management of computer systems, servers, networks, and data center environments easier. AVTECH provides powerful, easy-to-use software and hardware solutions that save organizations time and money while improving operational efficiency and preparedness. AVTECH products use advanced alerting technologies to communicate critical status information to remote system managers and IT professionals. Automatic corrective actions can also be taken.

(888) 220-6700   I   www.avtech.com

BayTech

PHYSICAL INFRASTRUCTURE

PRODUCTS SOLD:

- Power control, distribution, management, and metering
- Power transfer switches
- Console management
- Remote site management

BayTech's mission is to excel as a leader in the development of state-of-the-art, cost-effective data communications technology. The Long Beach Industrial Park, Miss.,-based company was founded in 1976 and, since the 1990s, has developed unique products for remote power management. The company uses printed circuit board instead of wires for a better, more resilient connection between the data center equipment and the receptacle. BayTech provides an extensive Web site with brochure downloads, warranty information, and reseller support and also offers evaluation units for data centers.

(800) 523-2702   I   www.baytech.net

Snake Tray

PHYSICAL INFRASTRUCTURE

PRODUCTS SOLD:

- Cable management
- Power distribution
- Distribution boxes
- Airflow solutions

From the company's inception in 1996, Snake Tray's focus has been the development of superior products that help eliminate repetitive, labor-intensive installation steps. By designing smarter solutions that install faster, Snake Tray helps customers reduce their labor costs for both cable management and power distribution systems. Snake Tray products are simply designed better than traditional cable management and power distribution products, allowing our products to deliver unsurpassed cost savings because they're easy to install. These benefits cut most installation costs by as much as 85%. Added to this is our expertise in datacom and data center cabling, which aids our customers during project planning. Snake Tray is building a solid reputation through its innovative products and a dedication to helping customers create smarter solutions.

(800) 308-6788   I   www.snaketray.com

CYBER SWITCHING®

PHYSICAL INFRASTRUCTURE

PRODUCTS SOLD:

- Intelligent power management
- Value-added power management
- Metered power distribution
- Three-phase power distribution
- Energy management and control
- Switches
- Patch Panels

Cyber Switching began pioneering power distribution technologies in 1994. Our PDUs are used to power cycle and manage power to blade servers, routers, switches, SANs, and other data center equipment. Our intelligent PDUs can monitor current individually by outlet and also provide virtual circuit breaker protection on an individual outlet basis. **No other PDU on the market offers these unique features.** We also offer basic PDUs with total current monitoring. Our products are installed in data centers, IT labs, wiring closets, and remote offices around the world. Cyber Switching employs a team that is dedicated to turning ideas into solutions.

(888) 311-6277   I   www.cyberswitching.com

EATON
Powering Business Worldwide

PHYSICAL INFRASTRUCTURE

PRODUCTS SOLD:

- UPSs
- ePDUs
  - Basic
  - Metered
  - Monitored
  - Advanced Monitored
  - Switched
  - Managed
  - Automatic Transfer Switch

Eaton's electrical business is a global leader in electrical control, power distribution, UPS, and industrial automation products and services. Eaton has many global brands that provide customer-driven PowerChain Management™ solutions to serve the power system needs of the industrial, institutional, government, utility, commercial, residential, IT, and mission-critical OEM markets worldwide.

For more than 40 years, Eaton has worked closely with customers to meet their requirements for innovative, end-to-end power protection and management solutions. That's why thousands of customers of all sizes around the world put their confidence in Eaton's comprehensive power solutions to protect their mission-critical systems.

(877) 785-4994   I   www.epdu.com

ISC™ Information Support Concepts, INC
Leading Information Technology Products Since 1987

PHYSICAL INFRASTRUCTURE

PRODUCTS SOLD:

- Server rack cabinets
- Rackmount keyboard monitors
- Rackmount power PDU, UPS
- Portable cases
- LAN furniture
- KVM switches
- Cables
- Computer furniture
- Custom requests

Information Support Concepts markets products for networking, telecom, corporate training rooms, and school computer classrooms. Information Support Concepts, which was founded in 1987, believes in taking a hands-on approach with customers, providing for a better overall buying experience.

As part of its commitment to customer service, Information Support Concepts has a "Customer Bill of Rights" that defines its pledge to the customer, including the right to quality products; online ordering 24/7; a prominently displayed 800 number and email contact on each catalog page; quick connection to a knowledgeable salesperson or customer service representative; access to product managers to talk about custom or difficult applications; fair pricing; and timely shipping.

(800) 458-6255   I   www.iscdfw.com

IT Watchdogs

PHYSICAL INFRASTRUCTURE

PRODUCTS SOLD:

A full line of environmental products, including:

- Climate monitors
- Sensors
- Cameras

IT Watchdogs got its start when founder Gerry Cullen developed a single product, called Weather Goose, in a one-bedroom apartment in Houston. Today, the company has seven different climate monitors and more than 70 different product numbers. Any company that has a server room, data center, or closets with expensive telecom or computer gear has a need for IT Watchdogs products.

At IT Watchdogs, we believe in providing customers with low-cost climate monitors that have the same or better features than competitors'. Plus, we offer fast, professional response to customers, with support handled by the same programmers and engineers that develop and maintain our products, not a call center on the other side of the world.

(512) 257-1462   I   www.itwatchdogs.com

Going Green!!!

Power Factor is Real and now it's Real-Time with the MRP Power Solution

Reach operational efficiency and conform to new Green Energy standards with the MRP outlet monitoring solutions.

BayTech's metered outlet modules report Amps, Voltage, VA, Watts, power factor and efficiency per receptacle.

Through our secure SNMP engine thresholds can be set to help identify equipment that is running inefficient.

Standard Features
- Single Phase and Three Phase
- 20,30,50,60 Amp Support
- On, Off, Reboot option
- HTTPS, SSH, SSL Access
- Radius, TACACS Authentication
- Tool less Mounting

Unique Features
- Modular Design
- All Receptacles Monitored
- Power Factor per Outlet
- kW Hour Meter per Outlet
- Current, Voltage and VA and Watts
- Reliable PCB Power Distribution
- Fail Functional Design

Metered Outlet - MRP

Additional Unique Features

All Circuit Breakers Monitored
Most metered power solutions only monitor input power. BayTech monitors all circuit breakers and reports via SNMP when thresholds are met.

Outlet Metering with Efficiency
Monitor individual outlets and receive current, watts, and volt-amps. Continuously monitoring equipment for efficiency with power factor.
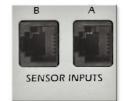
Locking C13 Receptacle Optional
Reliable integrated locking clips assure power cord retention. Unique to the industry and does away with nuisance wire clips.

Reliable PCB Power Distribution
ISD's (Insulation Displacement) connectors are faulty and unreliable! All BayTech power solutions use reliable PCB power distribution.

Integrated Sensor Inputs
Eliminate the need for extra environmental monitoring devices. All BayTech power solutions offer two ports for external temperature and humidity probes.

Control and Circuit Metering-MRP

Unique Features

All Circuit Breakers Monitored
Most metered power solutions only monitor input power. BayTech monitors all circuit breakers and reports via SNMP when thresholds are met.

Optional Outlet Metering with Efficiency
Monitor individual outlets and receive current, watts, and volt-amps. Continuously monitoring equipment for efficiency with power factor.
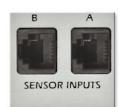
High Retention C13 Receptacle
Reliable integrated locking clips assure power cord retention. Unique to the industry and does away with nuisance wire clips.

Reliable PCB Power Distribution
ISD's (Insulation Displacement) connectors are faulty and unreliable! All BayTech power solutions use reliable PCB power distribution.

Integrated Sensor Inputs
Eliminate the need for extra environmental monitoring devices. All BayTech power solutions offer two ports for external temperature and humidity probes.

Build Custom Power Solutions with Standard Modular Product

BayTech's MRP Modular Rack Power system provides reliable power distribution with maximum flexibility for receptacle selection and power input.

BayTech offers three classes of the MRP system. Switched and monitored, simply monitored and individual receptacle monitoring.

User friendly interface for controlling power to receptacles, monitoring Current, Voltage, Watts, Temperature, Humidity, and KW Hour Meter.

Standard Features
- High and Low Density Models
- 120/208/AC Single Phase
- 208/400VAC Three Phase
- 20,30,50,60 Amp Support
- On/Off Reboot Control
- HTTPS, SSH, SSL Access
- Radius, TACACS Authentication
- Tool less Mounting

Unique Features
- Modular Design
- All Circuit Breakers Monitored
- KW Hour Meter
- Current, Voltage and Watt Meters
- Integrated Locking C13 Receptacle (Optional)
- Reliable PCB Power Distribution